NATIONAL PETROLEUM NEWS

New Q.D.A. Welcomed by Jobbers; Denounced by Retail Dealers

By Ward K. Halbert
N. P. N. STAFF WRITER

WHAT would happen in the gasoline distributing business, many oil men have pondered the past two years or so, if the actual margin to the retail dealer were to be cut back to the figure it used to be—say 2 cents a gallon, or 3 cents at the most?

Would existing individually-owned stations go out of business to any extent? Would their proprietors turn to merchandising other commodities to make up for their decreased earnings on gasoline?

Perhaps the answer to these questions can be told in the near future, based on experience in Chicago, where the new margins the oil companies are putting in effect Oct. 1 materially reduce dealers' margins.

The accompanying article gives the reaction of the retail dealer as a class to the announcement by the oil companies of their new price schedules.

CHICAGO, Sept. 15

OIL marketers of all classes through the middle west are readjusting their gasoline sales policies to the new order of things brought about by the recent revision of the Quantity Discount Agreement by the Standard Oil Co. of Indiana.

While the new schedule is not effective until Oct. 1, it has already been given extensive publicity. Generally the reaction on the part of good sized local marketing companies, selling wholesale from the tank wagon and operating gasoline stations, has been favorable.

Reactions from the trade were noted earliest in Chicago, both because it is a big marketing center where many disrupting factors that follow wide margins to the retailer are present, and because it is the headquarters of the big oil companies of the territory.

Early comments from retail dealers, as might be expected, have been unfavorable.

Two meetings of retail dealers were held in Chicago the evening of Sept. 16, and the result was a scattering about of much misinformation.

Only a few days before several of these same dealers had been denied certain special price concessions which they had been getting secretly—concessions to which they were not entitled under the terms of the old Q. D. A.—and they were indignant.

A great many others were in possession of limited information on the subject of the new Q. D. A. They believed they had been told by salesmen from the major companies that they were about to have their margins cut from 5 to 2 cents a gallon, which was not quite true and not the whole story, even if the figure had been correct. They, too, were very much worked up over the matter and heated words were spoken, some of which got into the daily press.

Paul Fligelman, secretary of the Filling Station Owners Association of Cook county, was quoted in the Chicago Tribune Sept. 12 as saying the new contract would put the majority of Cook county's 1800 independent gasoline stations out of business. His organization had met the night before at the Sherman hotel and appointed a committee to wait on the executives of the major oil companies and try to stop the adoption of the new contract.

F. H. Avery, secretary of the Automobile Associated Trades of Illinois, an older and probably larger organization than Fligelman's, held a meeting of his group in a hall on South Michigan avenue that same evening to consider buying collectively in tank car lots.

Mr. Avery intimated publicly that an Oklahoma refiner had offered association members a 5-cent margin, firm for six months, but declined to mention the name of the refiner. By a 5-cent margin he meant a delivered cost of 5 cents under the actual posted retail price.

The State Executives Club, composed of presidents and secretaries of state jobbers' associations, met in Chicago Sept. 13. The gathering had a full attendance of oil association officials from Standard Oil Co. of Indiana territory. The men seemed unusually cheerful about the future.

Most of the state association secretaries have issued bulletins urging their members to observe the terms of the new contract strictly, rather than to hunt for loop holes in it and chances to twist it to embrace special deals. J. A. Motter, of the Kansas Oil Men's association, said in part;

"These changes will undoubtedly mean more net profits to the oil industry. Everyone in the industry now should be able to make money without cutting prices. In view of the efforts being put forth by the major operators to bring about sane marketing conditions, it is hoped that every oil jobber will fall in line with the spirit of the changes and help bring the oil business back to a profitable basis."

The high points of the new Q. D. A. that have been stressed are:

1.—The retail Q. D. A. will be no more after Oct. 1. From then on, all service station customers will pay the service station price unless they are given some special, secret concession.

2.—The tank wagon price and the service station price have been divorced. Both still exist but stand independent of each other. Thus the ancient 2-cent spread may not always remain 2 cents.

3.—All discounts are figured from the retail price, but all dealers pay the tank wagon price on date of delivery. At the end of the month, if their volume entitles them to a wider

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Where Race Is On to Open New Deep Sand at Santa Fe Springs Field, California

Late view of Santa Fe Springs, in California, showing the area of activity where close to 200 wells are drilling, or preparing to drill, into the recently discovered deep sand around 6000 feet. Many derricks in the picture are old wells producing from upper zones. Plans are now being made to take surplus gas from the deep zone and use it to repressure the upper sands, now partially depleted

spread, they are paid the difference between the margin they have already received and what their Q. D. A. bracket entitles them to.

4.—There are no annual readjustments of refunds. If a dealer's volume is so small in January that he receives no refund, there is no chance for him to offset the January shortage in June and collect his January refund the following December on annual readjustment. Each month stands alone.

5.—The oil man may now quit keeping books for his customers. After Oct. 1 every dealer must keep his own tank wagon tickets, keep his own gallonage totals and submit them as evidence in order to get any refund at all.

Big distributors, jobbers and retail dealers alike will be able to save 2 cents a gallon on a great deal of gallonage after Oct. 1. The much discussed "inter city feature" of the Q. D. A. which the Wisconsin Department of Markets considered so unjust to the small buyer, is abolished.

In addition to that, the big distributor and jobbers will be able to collect 2 cents a gallon more from their largest resale agents and 1.5 cents more from many others. It is not anywhere denied that the dealers' margin will be less.

The best class of retailers will make 3 cents instead of 5 cents a gallon on gasoline sales. It will be impossible after Oct. 1 for a dealer to make a living off a small handful of customers. In order to justify a gasoline business, it will be necessary for a dealer to be a regular merchant and perform a public service, it is generally believed.

Mr. Fligelman of Chicago may have foretold the truth when he predicted that a considerable share of Cook county's privately owned service stations would go out of business under the new plan. Oil men of more experience have added the remark that Cook county has more than twice as many filling stations as are needed to serve the motoring public.

Of course there is going to be a certain amount of swapping customers on the part of the big companies. Proprietors of profitable filling stations often show resentment at having the margin reduced. One dealer was heard to exclaim vociferously this week, "By golly, if the Standard cuts my spread from 5 to 3 cents I will start selling some other kind of 'gas' if it costs me money. I won't let them treat me like that."

Possibly a Roxana dealer in Chicago had about the same thing in mind when he distributed a questionnaire this week to all his customers. It was short and to the point as follows:

"If we give you the same courteous service and honest full measure, and an Honest-to-God gas, other than Shell, would you still patronize us? Yes———. No———."

The man, who distributed the above questionnaire on small cards at his station, is said to have reported that 87 out of the first 100 customers questioned answered in the affirmative.

At least one real estate man in a residential section of Chicago complained that the new gasoline contract offered by the major companies will hurt his business. He says the demand for vacant corner lots has disappeared almost over night. Small business men who imagined they wanted desirable oil station locations in prosperous sub-divisions have changed their minds.

Since Sept. 1, when it became generally understood that dealers' margins were going to be reduced materially in the middle west, there has not been a rapid exodus from the retail oil business.

It was predicted in some circles that the newspapers would be full of classified advertisements offering service stations for sale. But the tendency has not been noticeable so far. The Chicago Tribune carried 15 such ads in its issue of Sept. 9, and 12 in the issue of Sept. 16, both Sunday papers.

190,000,000 Feet of Gas Saved Daily In Cal. Conservation Program

By Edwin Higgins*

Presented before Annual Convention Pacific Coast Gas Association, Coronado, Cal., Sept. 17

THE work done during 1928 by California oil operators, looking to the utilization of surplus natural gas production, has taken its place as the most important conservation movement ever attempted in the history of the American oil industry. The work has been replete with interesting features, gathering momentum and further extending its scope as it progressed.

Of outstanding significance is the fact that the task was undertaken, and is now proceeding, in a spirit of friendly cooperation between the state of California, represented on the one hand by Governor C. C. Young and his Gas Conservation Board and, on the other hand, by the oil industry of the state.

At the inception of the movement there was no recourse to law; indeed, it is improbable that equally gratifying results could have been obtained by any other method than the cooperative plan that has been evolved. Both the governor and the operators of the state are to be congratulated for their good judgment and foresight in handling the situation.

The magnitude of the problem in hand was not fully appreciated at the start. As the work proceeded, it became evident that the committees must have at their command information that would involve months of investigation. While California oil companies, individually, had for several years made studies and charts bearing upon oil-gas ratios, there was still insufficient information available on this subject.

In the matter of repressuring the oil structures with gas, there was no reliable criterion to follow. California operators were informed as to the results of repressuring projects in some of the eastern oil fields, but their own experiments in this direction had brought about results that were somewhat contradictory. It was most important that dependable data concerning the results of gas injection be obtained, and it was recognized that only by experimentation and study could this be done.

Development of the Plan

While oil operators in the Ventura district had already adopted measures to conserve oil and gas production, Governor Young, in the latter part of October, 1927, announced the appointment of what was termed the Governor's Gas Conservation Board. Its duties were to investigate the production and utilization of natural gas in the state.

The board was made up of the following members of the governor's official family: F. G. Stevenot, director of natural resources; A. B. Heron, director of Finances; B. B. Meek, director of public works; W. J. Carr, California railway commission; U. S. Webb, state attorney general.

Closely following this announcement, there were several conferences between the governor's committee and leading oil executives of the state. State officials and operators were as one in the opinion that the matter warranted careful investigation. The conclusion reached by all was that the situation could best be handled by cooperative means.

At a meeting held early in January, 1928, between the governor's committee and a committee of oil executives, it was decided to appoint an Operators' General Committee on Gas Conservation. This committee held its first meeting at Los Angeles Jan. 23, 1928, and the following officers were elected: M. E. Lombardi, chairman, Standard Oil Co. of California; Chester W. Brown, Union Oil Co. of California, first vice chairman; William Reinhardt, Shell Co. of California, second vice chairman.

It was decided at this meeting to make use of the Chamber of Mines and Oil, California's organization of oil operators, as a clearing house for conducting the work. W. L. Stewart, Jr., of the Union Oil Co. of California, was appointed temporary secretary, pending completion of arrangements with the chamber. It was decided to appoint field committees throughout the state to gather accurate data as to the amount of gas produced, the amount of gas consumed, the amount of surplus gas and its location, this information to be assembled in a report to the General Committee, with recommendations as to the utilization of such surplus as might be found to exist.

Accordingly, the following committees were appointed: Los Angeles Basin District Committee, under the chairmanship of Martin Van Couvering, petroleum engineer; Ventura District Committee, under the chairmanship of Ben E. Parsons, General Petroleum Corp.; Kern County Committee, under the chairmanship of J. H. Menke, Standard Oil Co. of California; and a Distribution and Market-

*Managing Director, Chamber of Mines and Oil, Los Angeles.

First Time Made Public

THE cooperative gas conservation program in California between oil operators and the state is now accounting for 190,000,000 cubic feet of excess gas daily.

Of this total, 135,000,000 cubic feet daily is held in the ground in oil fields, accompanied by the shutting in of some oil production.

Fifty-four million feet, taken from the oil producing sands, for the most part, is put back into other strata in the ground for storage now, to be withdrawn and marketed later.

Oil operators who have worked out this program in California fields over nearly the past year are now planning methods of taking care of the excess gas which will come from the newly discovered 6000-foot zone at Santa Fe Springs.

This program represents a remarkable example of cooperation between oil industry and state to the end of conservation of gas and oil. The accompanying statement by Managing Director Higgins is the first time details of the program and its results have been made public.

ing Committee, with William Moeller, Jr. of the Southern Counties Gas Co., as chairman.

Within a few days these subcommittees had been organized and had proceeded to investigate, not only the gas production situation, but the facilities for transporting excess gas from points of production to other areas where it might be utilized or stored. At a meeting of the Operators' General Committee Feb. 17, the information was brought out that, during the five or six months of low seasonal demand, the gas surplus would reach 160 million cubic feet per day.

It appeared that 60 million cubic feet of this surplus could be eliminated by shut-in arrangements between the various companies concerned. The committee approved a plan embracing the shutting in of production in Ventura county and at Seal Beach. It further recommended the study and application of gas storage as a secondary stage of the conservation program.

At the meeting of the Operators' General Committee March 14 and 15, the field committees presented, as a result of their investigations, a mass of data dealing with conditions in the various producing districts of the state. A digest of this information constituted the first complete picture of the gas production and utilization situation in California that had ever been made available.

After a careful consideration of the facts in hand, the Operators' General Committee, at a meeting April 10, instructed the field committees to prepare reports for each district embracing the following details:

1. Map of the area showing probable limits of the sand in which gas can be stored, ownership and leasehold interest in each parcel, and existing wells. (Statement as to zone and thickness thereof.)
2. Maps and compilations showing the present gas pipe lines and compressor plants in each area.
3. Estimates of compressor installations and new pipe lines necessary to inject the required amount of gas into the structure.
4. Wells selected for such injection.
5. Estimates of new trunk line necessary to take the required gas into the field.
6. Estimated costs for improvements necessary within the field and, separately, to bring gas to the field.
7. Estimated costs of injecting the gas—that is, estimated operating cost per thousand; divided into "out-of-pocket" costs and other costs, such as interest on new investment (as above), depreciation, etc.

By the middle of April, gas injection programs in the Dominguez, Brea Canyon, South Mountain and West Coyote fields, looking to the ultimate injection of approximately 40 million cubic feet of gas per day, were under way, and the General Committee was giving attention to other projects that appeared to warrant consideration. In the meantime, the shut-in policy in the Ventura field had resulted in the pinching in of 40 million cubic feet of gas daily.

> LOS ANGELES, Sept. 15.—Fred G. Stevenot, state director in charge of natural resources, chairman of Governor Young's gas conservation committee, has called a meeting of all operators interested at Santa Fe Springs at Los Angeles, Sept. 20.
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> Members of the operators' general committee on gas conservation are expected to be present, in addition to Reed Bush, state oil and gas supervisor.
>
> The tentative gas conservation plan calls for pumping a part of the surplus gas from the deep zone at Santa Fe Springs into the Meyer sand. Among certain of the operators it is doubted, however, if the Meyer will be worth repressuring by the time 100 or more wells have drilled through it. A number of the wells lose circulation while drilling through the Meyer and it is feared that much of this sand will be filled with mud and water.
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> These matters will be discussed at the meeting. New ideas are expected to be developed and an entirely new plan may be forthcoming.

Coincident with the progress above outlined, the Operators' General Committee suggested the publication of papers dealing with the principles and possible savings connected with the conservation of gas. A. F. Bridge, executive engineer of the Southern Counties Gas Co., prepared one of these papers, entitled "Variables of Natural Gas Production and Utilization in California." This was given wide publicity through the petroleum press and by other means.

Another paper, prepared by a group of engineers and entitled "How to Increase Oil Recovery and Conserve Gas in the Field" was printed by the Chamber of Mines and Oil and distributed by Mr. Reed Bush, State Supervisor of Oil and Gas.

Reorganization of Committees

Early in May it became evident that repressuring and gas injection were beginning to assume a position of first importance in the conservation program. The Operators' General Committee decided on a reorganization of the committees, dividing the work into two parts, viz., (1) Reduction of gas production by manipulation of flowing wells and restriction of drilling; and (2) caring for surplus gas by transportation, injection, and storage.

The field committees (covering Ventura and Kern counties and the Los Angeles Basin) were directed to continue work on the first mentioned activities, and the repressuring work was placed in the hands of a newly organized committee made up of engineers who were at work on the injection projects then in hand.

The direction of the first group was delegated to Reed D. Bush, State Supervisor of Oil and Gas. A. C. Rubel, of the Union Oil Co. of California, was made chairman of the Storage and Repressuring Committee. This latter committee also took over the functions formerly filled by the Distribution and Marketing Committee. The newly appointed committees have held monthly meetings and have made regular reports of progress to the Operators' General Committee.

Situation at the End of August

The accomplishments up to the end of August, 1928, are reflected in the following summary: At that time, as a result of the shut-in plan, there was approximately 135 million cubic feet of gas held in the ground daily in the various fields of the state. Injection and repressuring projects were accounting for over 54 million cubic feet, distributed as follows: Dominguez, 20,155,000 cubic feet; West Coyote, 7,000,000; Montebello, 10,000,000; Brea, 4,350,000; Santa Fe Springs, 800,000; Seal Beach, 800,000; Ventura county, 1,000,000; Santa Barbara county, 500,000; and San Joaquin Valley fields, 10,000,000 cubic feet.

Thus, with the conserving of 190 million cubic feet of gas daily, it may seem that the problem, as originally conceived, had been successfully met. The early calculations of a maximum of 160 million cubic feet of surplus were upset by the bringing in of an unusual number of heavy oil and gas producing wells the first half of 1928.

This unexpected leap in production resulted in an increase of surplus gas, on Sept. 1, to approximately 170,000,000 cubic feet. It should be pointed out here that the injection projects were slow in getting started, owing chiefly to the fact that the necessary compressor facilities were not immediately available. Progress in this direction was most marked during August, in which month the quantity of gas injected increased from 30 million to 54 million cubic feet. The natural decline of gas production that may be expected at Long Beach, together with the near approach of the period of greater seasonal demand for gas, should operate to reduce the surplus materially.

Situation at Santa Fe Springs

In the latter part of August, 1928, there were about 172 wells drilling, or preparing to drill, to the newly discovered deep Buckbee sand at Santa Fe Springs. Anticipating a great volume of gas when production starts,

the operators concerned are now formulating a plan which, if successful, will be the most forward-looking conservation project yet attempted in the California program.

It is proposed to use part of the gas that will issue from the Buckbee sand, which under ordinary conditions would be blown into the air as waste, to repressure the overlying Meyer sand.

The plan aims to accomplish the following things: First, conserve the waste gas from the Buckbee zone by storing it in the Meyer zone and ultimately recover approximately 80 per cent of it for commercial use; second, increase the recovery of gasoline from the gas after it issues from the Meyer sand; third, increase by several million barrels the ultimate recovery of oil from the Meyer sand; and fourth, decrease the cost per barrel of production from the Meyer sand.

Petroleum engineers say that it is practically certain that, upon the initiation of the plan, many of the wells in the Meyer sand that are now pumping will again begin flowing. It is through this means that it is expected that the cost of production will be lowered. The plan involves many complicated details that must be worked out and its success depends largely upon the cooperation of the operators and lessors in the field. Present indications are that the project will be brought to a successful issue, as the principal operators in the district have already signified their approval of the plan in principle. Every effort is being exerted by the operators to put the plan in operation before the beginning of production from the newly developed Buckbee zone.

Benefits of the Work

While the work of gas conservation in California is far from completed, it is plainly evident at this time that the movement is one of first importance to the oil industry of the state. The outstanding benefits apparent at this time include:

(1) Reduction of gas wastage and conservation of both oil and gas for future production.

(2) Material increase in the quantities of oil and gas that will ultimately be secured from the oil measures of the state.

(3) Decrease in operating costs by the conversion of pumpers into flowing wells through repressuring methods.

(4) Stabilization of the supply of gas for commercial uses, making it possible for public utility gas corporations, on account of storage during periods of minimum demand, to equalize their seasonal commitments for gas purchases.

These benefits must accrue to the people of the state and of the nation, as well as to the operators who are assisting in bringing them about. Every major oil company in the state was represented in this investigation and all of them, without hesitation, brought forth their records of costly investigations covering long periods of time, and placed them at the disposal of the committees.

The assembling of all of this information into a common fund probably has brought about one of the greatest advantages of the investigation. The committees were enabled, from all of the data on hand, to assemble facts of great value regarding the control of gas and oil wells. This feature of the work doubtless will result in more economical methods of oil and gas production and will be of lasting value to the industry and to the people of the state.

Another valuable by-product of this investigation has been the promotion of cooperation between the oil industry and the state. It is the first time that these two important agencies have gotten their feet together under the table in an attempt to solve a major problem. Now, they have worked together and each has found the other a satisfactory teammate.

Finally, these tangible results constitute the best kind of recommendation for the solution of problems of this nature right in the state where they originate. California's oil industry has taken a momentous step in the important matter of cooperation between state and industry.

Well in Yates Field Sets New Record

HOUSTON, Sept. 15.—Based on a 45-minute flowing test, the D-5 well of the Mid-Kansas and Transcontinental partnership in the Yates field, Pecos county, Texas, has set a new potential production record for West Texas.

It produced 4005 barrels in 45 minutes, or at the rate of 128,160 barrels daily. The largest similarly gaged completion of the past had been the Gulf Production Co.'s No. 13, in the Runnels School Land survey, which tested 5,232.36 barrels in one hour, or at the rate of 125,576.64 barrels daily.

The Mid-Kansas-Transcontinental well was tested at the shallow depth of 1265 feet, Sept. 14. The Gulf well made its big flow, Aug. 27, at completion depth of 1280 feet.

Both wells are pinched to minimum yields under the prorating of the Yates field, which limits total allowable production to 72,500 barrels daily for the Pecos county area.

PONCA CITY—Reports originating in Los Angeles that E. W. Marland plans to retire from the presidency of the Marland Oil Co. brought a denial from him.

Ward Joins A. J. Stevens

CLEVELAND, Sept. 18.—O. B. Ward, for the past six and a half years sales manager of the Battenfeld Grease & Oil Co. and well known in the oil industry, particularly in the middle west, has resigned that position and associated himself with the A. J. Stevens Grease & Oil Co., Kansas City, according to Jay Cannon, vice president and general manager of the latter company.

Heaton Leaves Bowser Co.

CHICAGO, Sept. 15.—R. L. Heaton, for several years advertising director of S. F. Bowser & Co., Fort Wayne, and recently eastern manager, with headquarters at Fort Wayne, has resigned. Mr. Heaton is taking a vacation before announcing plans for the future.

R. R. Safford, formerly manager of the Dallas branch of the Bowser company, and recently manager of the Mid-West division, with headquarters at Fort Wayne, has also resigned and is moving back to Dallas, where he plans to enter the insurance business.

LOS ANGELES, Sept. 15.—Four men are dead and seven are in hospitals with serious injuries as the result of an explosion of gasoline vapors at the El Segundo refinery of the Standard Oil Co. on Sept. 13.

Wilcox Sand Discovered In Allen Pool

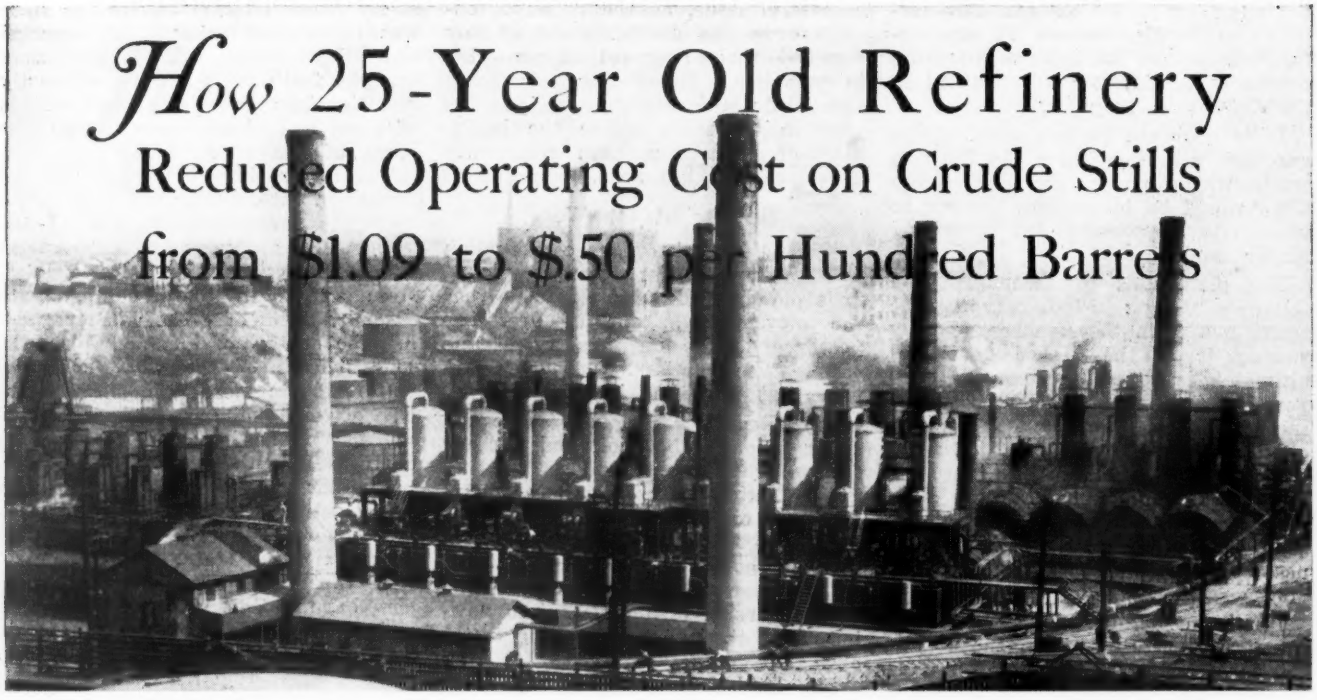
(By Telegraph)

TULSA, Sept. 18.—More than 10 miles from other Wilcox sand production, the Sinclair Oil & Gas Co. has drilled in a Wilcox discovery in the Allen pool. The new well is the No. 2 Amos C. in the SE NE NW of 7-5N-8E. Top of the Wilcox was found at 4158 feet and the well was drilled two feet deeper. It produced 455 barrels in 13 hours and is being pinched in to nominal production.

This is the first Wilcox sand production in the Allen pool which is located in Pontotoc, Seminole and Hughes counties, southeast of the Seminole district. The pool has been producing more than 20,000 barrels daily from the Cromwell and sands higher up. The structure is sharply defined and it is believed will supply a fair sized Wilcox pool.

BOSTON, Sept. 17.—The fall meeting of the Committee on Flammable Liquids of the National Fire Protection Association will be held at Tulsa on Nov. 7. A visit to the oil fields has been planned as part of the program, which will require members to spend most of the week of Nov. 4 on the trip.

How 25-Year Old Refinery Reduced Operating Cost on Crude Stills from $1.09 to $.50 per Hundred Barrels



The old and the new contrasted. View of the new crude battery with bubble towers, just behind the two stacks in the foreground. The older coking equipment is seen behind the crude stills.

CLEVELAND, Sept. 14

By Paul Truesdell
N. P. N. STAFF WRITER

TWO years of hard work—planning, remodeling, reconstruction—have reduced by 54 per cent the cost of processing a barrel of crude oil in a certain western refinery.

The name of the plant must be kept secret. The officers are willing that the industry should be told how this was accomplished but do not want the company identified. The man mostly responsible for the work took me through the plant the other day.

In 1926 it was costing $1.09 to run 100 barrels of crude oil down to coke in this refinery, he told me. That, of course, was exclusive of cracking of the gas oil. Today it is costing 50 cents to do the same work and further improvements are on the way which are expected within 30 to 60 days to whittle down the cost to around 45 cents per 100 barrels.

In 1926 about 7500 barrels of crude a day were being put through the plant. Today the daily crude run is about 12,000 barrels. Changes made in hookups of equipment, in running schedules and in the equipment itself have brought about the saving of about $200 a day in chemicals used in treating products.

All this has been accomplished without the addition of any new primary equipment. It has been done by utilizing to the best advantage equipment already on the ground. In other words, it has resulted from the lively exercise of brains rather than the expenditure of large sums of money.

The plant is running on ordinary Mid-Continent crude so its problems of operation are about the same as those of scores of other refineries.

The refinery under discussion was built a quarter of a century or more ago. Of course, very little if any of the equipment in the plant is actually as old as that. Most of it has been renewed several times but usually with equipment of the same type as that replaced. Very little in the way of modernizing the plant as to operating practice had been done between the time it started operations and 1926, except for the installation of a cracking plant.

In 1926 the refinery was running altogether batch. The crude was all run down to coke in shell stills. There were no fractionating towers of any kind on the stills, the vapor lines running directly into the condenser worms. All light distillates had to be rerun and most of them steam stilled to make specification products.

Straight run gasoline was mixed with the pressure distillate from the cracking stills and the whole steam stilled and treated with 6 pounds of 66 degree sulfuric acid to the barrel, and then doctor treated.

About 7500 barrels of crude a day were run and about 60 per cent of that, or 4500 barrels, was converted into light products which were treated with acid, making a daily consumption of 27,000 pounds or 13½ tons of acid which, at $15 a ton, would cost a little over $200 a day.

There was one battery of 10 stills in the plant so hooked up that it required but little change to make it suitable for continuous operation. These had been used as rerun stills for the pressure distillate. The first step was to convert these batch stills into two continuous batteries by changing the piping, and to improve the thermal efficiency by fitting internal flues in the stills, and by installing bubble towers.

Four of the stills were made into a battery for rerunning the pressure distillate and the other six were revamped to make a continuous crude battery.

The stills are 10 by 40 feet. In the bottom half of each still 40 six-inch tubes were installed, running the length of the shell. The ends of the tubes were fitted into holes cut in the bulging ends of the still and welded firmly in place. The fact that these stills have worked well seems to disprove the belief sometimes held that it is necessary to have flat heads on such stills to act as tube sheets.

Suitable smoke boxes, breechings and stacks, of course, were also installed to accommodate the new method of firing, so that the products of combustion travel to the back of the still wiping the fire sheet, then enter the smoke box at the rear and travel to the front again through the tubes to pass into the breeching and up the stack.

The four rerun stills were so arranged that the combustion gases from two stills were handled by one stack but the other six stills have a stack apiece.

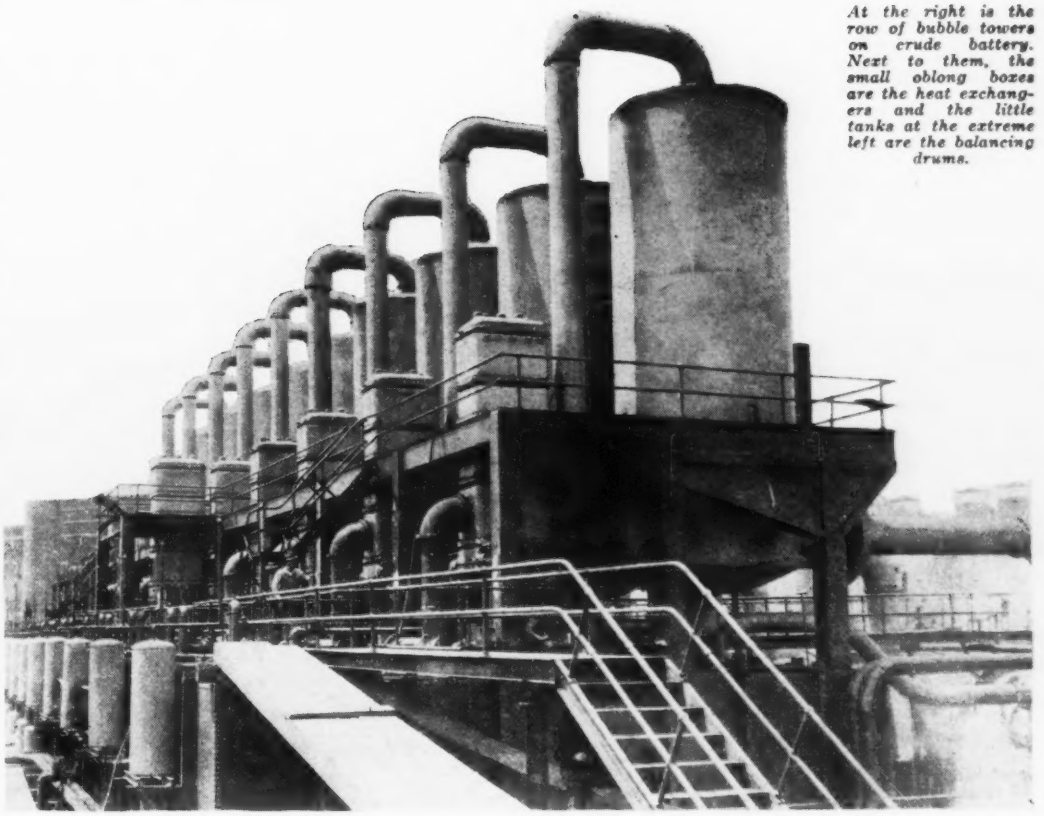
When revamping of the battery of six stills was completed it was set to running crude continuously. The other battery of four was kept for rerunning pressure distillate. These six stills took care of all the crude run through the plant. The four rerun stills were unable to handle all the pressure distillate but the excess was rerun in the steam stills as it had been before.

It was found that the necessity for acid treating the pressure distillate and the straight run gasoline came

from the fact it had a poor color because of imperfect fractionation. With the properly functioning bubble towers on the rebuilt crude and rerun battery, a product of 23 to 25 color was obtained direct from the towers.

Doctor treating was abandoned too, as unnecessary, and the considerable cost of litharge was saved. A light wash with caustic soda solution was substituted for the doctor treat. This produces a gasoline that is stable after standing for months in the light and passes the copper strip corrosion test.

The crude battery as it is today, running nearly 12,000 barrels of crude oil a day, consists primarily of a flash tower, six stills, each equipped with a bubble tower, and eight Leach vapor-to-liquid heat exchangers.



At the right is the row of bubble towers on crude battery. Next to them, the small oblong boxes are the heat exchangers and the little tanks at the extreme left are the balancing drums.

The crude feed is pumped from storage through the eight heat exchangers in series, picking up heat from the cooling vapors on their way to the condensers, and then enters the flash tower at about 350 degrees Fahr. The light ends flash into vapor in the tower and pass overhead, about 12 per cent of the gasoline in the crude being thus recovered by using waste heat only.

The gasoline vapors passing out of the top of the flash tower go through No. 1A and No. 2A heat exchangers and then to the condenser. This gasoline is kept separate from the rest, being an absolutely finished product and not requiring even a lye wash to make it ready for market.

Bottoms from the flash tower gravitate into Still A. Vapors from this still pass into No. 1 bubble tower. Vapors from the top of this tower pass through No. 3A heat exchanger and thence to the condenser, where it condenses as high test gasoline. Bottoms from the tower are refluxed back into the still.

The bottoms from Still A are steam lifted onto the fourth plate of No. 2 bubble tower, where additional light ends are stripped out by scrubbing action and the heavy ends drop into Still B. The vapors from Still B passing into No. 2 tower, furnish the scrubbing medium. A gasoline vapor stream is taken off the top of No. 2 tower, passing through No. 4A heat exchanger on the way to the condenser.

Bottoms from Still B are steam lifted onto the fourth plate of No. 3 tower, where they get a final scrubbing by the vapors from Still C, which strips out the last of the light ends. The vapor stream going overhead from No. 3 tower is a gasoline stream. The bottoms from the tower reflux into Still C, from which the bottoms are steam lifted into No. 4 tower.

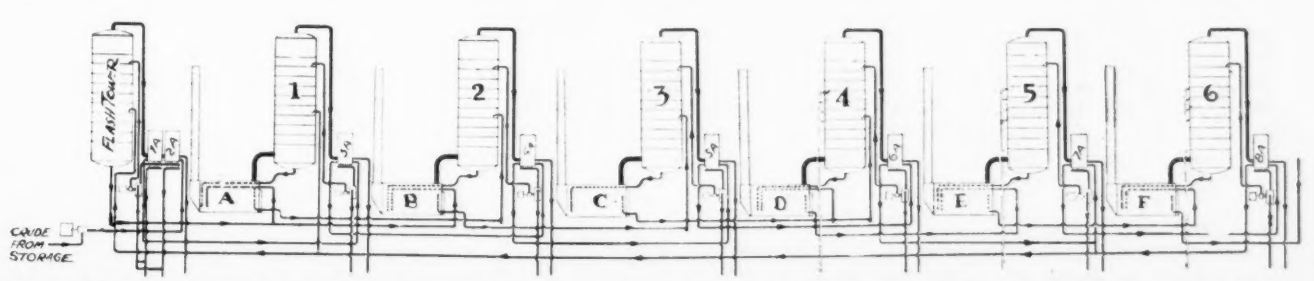
The stream going overhead from No. 4 tower is kerosene and a wax distillate stream is taken off three plates near the top. The bottoms from Still D gravitate into Still E and those from E into F after the manner of the ordinary continuous battery.

The streams going overhead from Towers 5 and 6 are gas oil and a wax distillate stream is taken off from three upper plates in each of these towers. This wax distillate cut is pressable without any cracking.

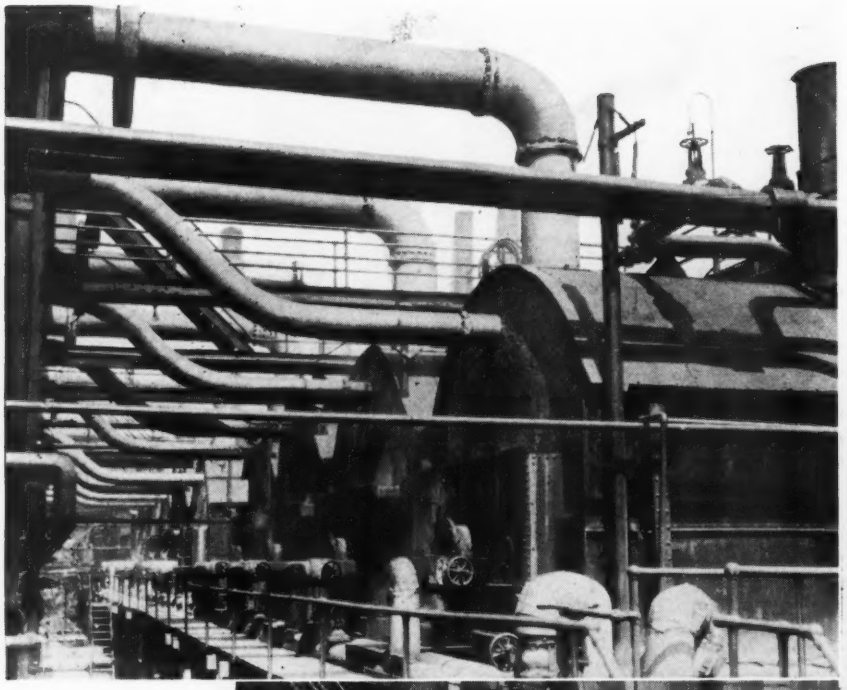
The reason advanced for the fact that the wax can be pressed out of this distillate direct from the tower, when general belief is that this cannot be done, is that close fractionation makes a narrow wax cut, instead of a wide one containing the amorphous wax tailings, and that closely fractionated wax will form crystals without cracking. At any rate, this wax distillate is being pressed every day without ever being returned to a still after leaving the bubble towers on the crude battery.

How well the products are fractionated in the crude battery is indicated by the fact that the bottoms from Still F, instead of being 24-26 gravity, are 18 gravity.

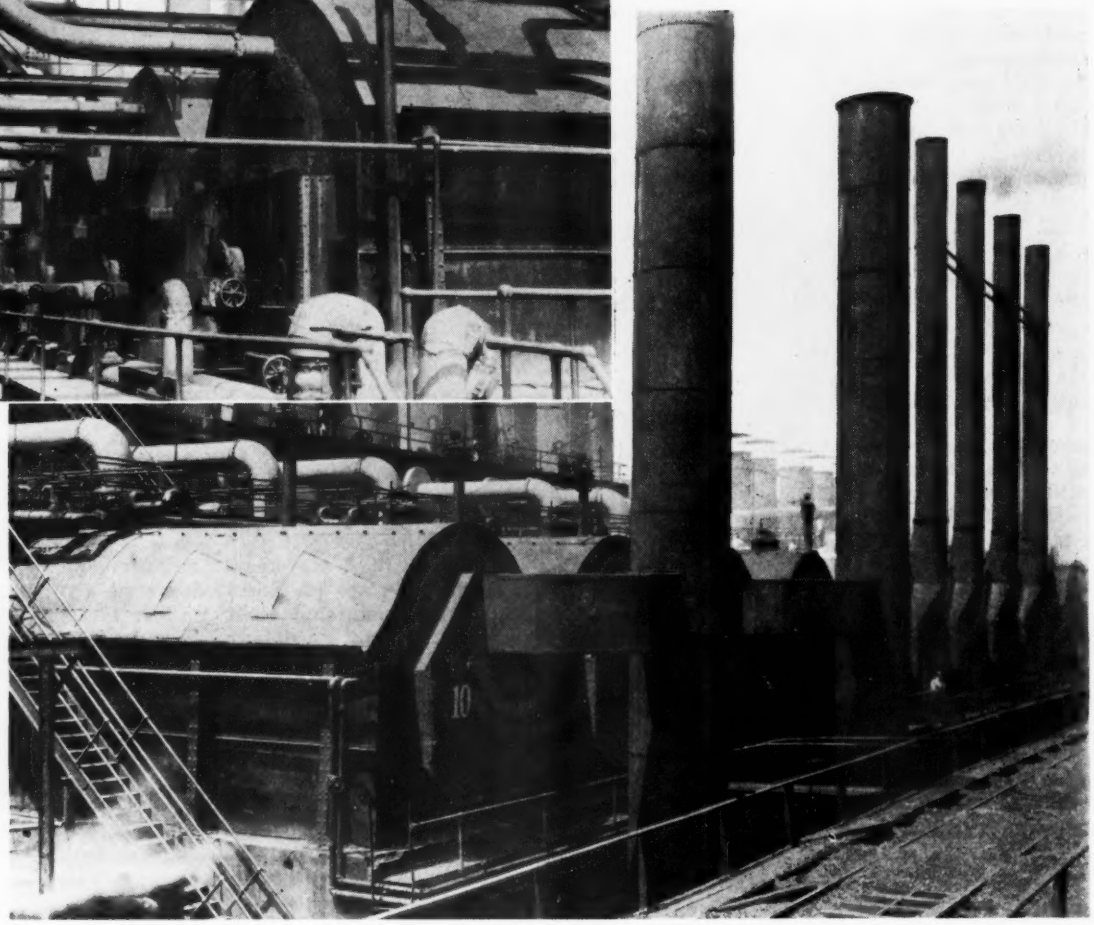
All the stills in the crude battery



The remodeled crude battery at the refinery discussed in this article. At the left is the flash tower. A, B, C, D, E, and F are the stills. The bubble towers are designated as 1, 2, 3, 4, 5 and 6 and the heat exchangers as 1A, 2A, 3A, 4A, 5A, 6A, 7A and 8A.



At left: The firing front of the crude still battery showing vapor lines with expansion joint (top), feed line for refluxing bottoms from bubble towers into stills (entering front heads of stills) smokeboxes and flow lines (lower right). The stills are fitted with internal flues



At right: The back end of the crude and rerun stills showing how breechings and stacks are arranged for firing through internal flues

are equipped with steam coils, and steam is used in all of them during distillation. Very little steam is used in Still A, a little more in Still B, progressively more in C and D and a full head in the end stills E and F.

As before stated the gasoline with the exception of that taken off in the flash tower, is given a lye treatment. The kerosene also is lye treated. The gas oil furnishes the charging stock for the cracking units. The fuel oil is run down to coke, furnishing overhead more gas oil, which also goes into cracking stock.

Some condensation of heavier ends takes place, of course, in the heat exchangers of the crude battery. The condensate from each of the exchangers flows into a small drum, which is connected with a pump operated by a thermostat in the top of the tower. Temperature of the towers is automatically regulated by these thermostats. If the temperature of the tower gets too high, the thermostat starts the pump and throws into the tower some of the cool condensate.

The excess condensate from each drum flows to the tail house, its release being governed by liquid level controls. These drums, by the way, are old receiving drums from cracking stills adapted to the new purpose.

It is expected that a pipe still, operating under vacuum, will soon be placed on the end of the crude battery, the residue will be distilled to give overhead a cylinder stock and a residue of marketable asphalt. Then the coking operations will be discontinued.

Facts Lead to Profit

CONTINUED profits in the refining industry can only follow the development of necessary facts for the heads of the manufacturing and sales departments.

Henry W. Ralph, head of the Simplified Procedure Institute, Chicago, made this point in his talk prepared to present before the National Petroleum Association, at Atlantic City, Sept. 20.

His subject was "Facts Significant in the Profitable Management of Petroleum Refining and Marketing."

These necessary facts, in detail for various departments in refining, are described in the special series of articles by Mr. Ralph on Accounting Methods for Refineries now appearing exclusively in NATIONAL PETROLEUM NEWS.

Delays in Applying New Proration Order Bring Gain in Okla. Production

By Lawrence E. Smith
N. P. N. STAFF WRITER

TULSA, Sept. 15

EFFECT of the new state corporation commission order limiting production in Oklahoma to 700,000 barrels a day was not apparent in daily average production of the state for the week ended the morning of Sept. 15.

Figures compiled by a major company show output for that week averaged 726,340 barrels daily. For the previous week the average was 706,000 barrels.

The delay in actually making the commission's order effective Sept. 10, as called for was due to delay in obtaining the potential production of the eight flush pools named in the order, production of which was to be held within 425,000 barrels daily.

The commission's order prescribed settled fields—those producing at a rate of less than 100 barrels per well per day—were to produce at their normal rate, about 275,000 barrels, and the flush fields were to be brought within 425,000 barrels to hold the state's output at 700,000 barrels, about present market demand.

Two days' open flow production of the eight flush pools were allowed to obtain the potential, the average of those two days constituting the figure from which deductions would be made. Delays occurred in securing this potential. Some of the leases in the Little River and St. Louis pools had wells that were off production and could not be started up again in time to obtain the full open flow potential to which the lease was entitled. Naturally, an operator could not be penalized because he was so unfortunate as to have wells which temporarily would not produce.

Consequently, no potential figures were given by the umpire to the operators, with statement of the production each lease was to be allowed, until the afternoon of the 13th and the first 24-hour period affected by proration was that which began at seven a.m. the 14th.

The potential of the several pools now affected by the order and their allowed production, in barrels, is as follows:

Pool	Potential	Allowed
St. Louis	105,579	95,022
Seminole	49,477	44,527
Bowlegs	52,510	47,249
Earlsboro	91,539	82,382
Little River	130,702	116,632
Searight	13,234	11,911
Allen	21,277	19,150
Lovell	9,200	8,380
	473,518	425,253

The potential figure is to apply until Oct. 1, when new two-day open flow tests will be made. Thereafter, new potential figures will be obtained semi-monthly.

The actual production of the important pools for the 24 hours ended the morning of the 15th the first real day of proration—was as follows:

Little River	116,768
Bowlegs	49,124
Earlsboro	87,438
Seminole	45,484
Searight	12,433
St. Louis	109,020
	420,267

To these must be added the production of the Allen and Lovell fields, gauge on which was not available, but whose production certainly was enough to put the entire group considerably above the 425,000 barrels permitted in the order.

It is seen that Little River very closely approximated its allowed figure. St. Louis, where new wells have been coming in, greatly exceeded its quota. It is not expected that each field will be held each day to the exact figure it is allowed, but it will all be evened up as they go along.

The machinery for handling the proration is in the hands of Ray M. Collins, for many months the umpire in the Seminole district. The commission order authorizes the acceptance by Mr. Collins of the production figures turned in each morning at the scout's "check" meeting. That meeting is the gathering attended by all oil company scouts in the field. Each gathers information on production and development on a part of the field and at the meeting the information is pooled. For a number of years, oil companies insisted that their scouts work independently, but the merit of the cooperative plan now used finally won out.

Collins has one man in the field who attends the scouts' meeting and relays the figures to Collins in Tulsa. Here the records on each lease are kept. An "over" and "short" account is maintained on each lease and each operator affected by proration is kept informed by the umpire of the amount of oil he must make up, if he is long, or the amount to his credit if he hasn't produced as much as he is allowed. The keeping of such records is an extensive bit of clerical work. An additional check is provided on the actual production from pipe line company reports on runs and storage. The umpire has assigned one man to spend all his time on this.

The system has been simplified from that used a year ago when the Seminole district was under proration. Then a daily allowance figure was issued to operators and decline curves on leases were carried forward daily to fix the potential. Now the same potential applies for a half month except for the addition of new wells.

A flat figure of 10 per cent was adopted as the deduction from the potential on all leases in the pools affected. This will prevail until the first of October, unless new wells should swell the potential enough to make it necessary to increase the percentage of deduction.

Each new well is permitted three days time to complete and its third day's production is to be taken as the potential and added to the potential of the lease on which it is located. If the oil produced from a new well during the three-day completion period is sufficient to cause the lease to exceed its previously established potential, a deduction from the combined production of the new and old wells will be made, equivalent to the excess produced.

The order under which proration is being carried on expires Jan. 1, the commission reserving the right to renew it for 30-day periods up to April 1. The commission also asserted in the order that, if after Oct. 1 it found it desirable to do so, it would reduce or increase the total amount to be produced in the state.

Such change from the 700,000-barrel daily maximum figure would be made because of increase or decrease in market demand for crude oil. The manner in which market conditions would be determined was not specified in the order, nor have the umpire and the advisory committee decided what factors would be taken into consideration nor what information would be used.

It is their opinion, however, that the facts would be easy to ascertain. Increases in runs of oil to storage would be a determining factor, together with its corollary—decreases in refinery runs.

The only pools where the proration work will be difficult are St. Louis and Little River, both in the flush stages.

Standard of New York Sells the East to the Nation's Tourists

By Roger B. Stafford
N. P. N. STAFF WRITER

THE STANDARD OIL CO. OF NEW YORK this year is carrying on what is probably the most extensive program of any oil company to induce touring in its marketing territory.

It operates a tourist bureau which will answer, this year, 150,000 *requests for motor travel information from all over this country, and even in foreign countries. That bureau has gone to almost unbelievable lengths to secure accurate road information in individual instances.*

Early in the summer the company, as a part of the same definite program, ran page and two-page copy in the Saturday Evening Post telling of the scenic beauties, historic lore, recreation advantages and world-known industries of New York state and New England. That copy tied in with the tourist bureau and the company's service at its stations and quality of its products.

The accompanying article is a detailed description of the program.

ONE day late last winter a man walked into the Socony Touring Service bureau at 26 Broadway and made some inquiries about a motor trip he intended to take in a day or two to Montreal.

"You can't get through to Montreal. The roads are snowbound," he was informed by a uniformed clerk.

"Of course I can. I have been advised that the roads are open," the motorist asserted and insisted his information must be right.

The clerk called the manager of the bureau and, when the man said he would not leave New York until the next day, the manager promised to let him know in just what condition the roads were.

The manager called the distributor of the Standard Oil Co. of New York at Plattsburg near the New York-Canadian border and secured the latest information. The roads were blocked with snow drifts four feet deep north of the line, the Plattsburg man reported. Only one car had come through from Montreal since Christmas, more than two months before.

This is a sample of the touring service the Standard of New York is giving to its customers. It is not an isolated case. Last fall a Cleveland woman had been routed through Vermont by a touring agency after the disastrous floods. She passed through New York and by chance stopped at the Socony bureau. Her routing was checked and it was found that many bridges on the roads she

THE SATURDAY EVENING POST April 21, 1928

COME TO NEW ENGLAND!

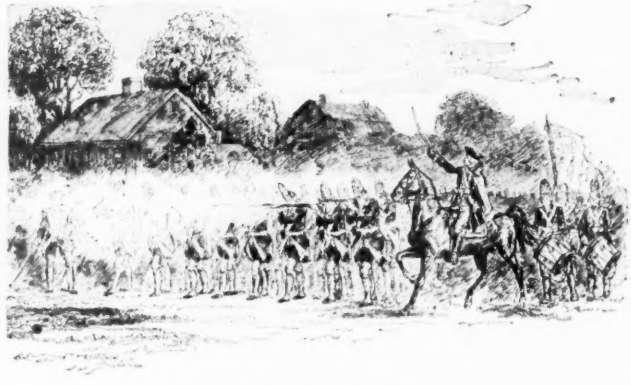
THE Standard Oil Company of New York places at your disposal its Socony Touring Service to help you plan your tour and advise you of road conditions in New England and New York State. Address Socony Touring Service (Room 768), 26 Broadway, New York City.

You may also obtain unusually fine road maps of the territory either by writing us in advance, or at the 30,000 Socony stations.

The courteous service at these stations, and the uniform quality of Socony Gasoline and Socony Motor Oil, will also add to the pleasure of your trip.

GASOLINE SOCONY MOTOR OIL
STANDARD OIL COMPANY OF NEW YORK

THE SATURDAY EVENING POST



SEE WHERE HISTORY WAS MADE

HERE five Presidents were born. Four of the houses still stand. Here Paul Revere made his midnight ride and the tea was tossed into Boston Harbor. Here lived Emerson and Longfellow, Whittier and Hawthorne. Stand in the rooms where their great works were produced. Toss a stone on the ever-growing pile which pilgrims have built on the site of Thoreau's cabin.

Follow the trail to the white farmhouse where Calvin Coolidge took the oath by the light of a kerosene lamp. Stand by the bridge where the Minuté Men drove back the redcoats, and "fired the shot heard round the world." Visit Bunker Hill. Sit in Daniel Webster's study, and the Wayside Inn. See where Harriet Beecher Stowe wrote "Uncle Tom's Cabin." Take a trip to Plymouth Rock. See the Great Stone Face in the White Mountains. Go down to the harbors where the whalers of New England found respite from the sea.

And, while you are making history live again, visit the industries of modern New England. Their products go all over the civilized world. The men who make them are friendly and glad to welcome visitors.

It is an interesting country, a friendly country—good roads, good people, and clean, inexpensive inns. New England invites you and the children. Come!

What greater appeal to the average American family than the invitation to "Come to New England. See Where History Was Made," run across two pages in the Saturday Evening Post in the time of the year when the family is planning its summer

was to traverse had been washed out. The bureau's reports were verified to the minute by a long distance telephone call to one of the company's agents in Vermont. She was given another routing.

Information supplied by the Socony bureau covers the United States and Canada, but occasionally the bureau is called on for routings in foreign countries. Such a case arose last year, when the foreign mission board of one of America's evangelical churches planned to send several cars with missionaries to Persia. Steamer rates on the cars east of Suez were high so the mission board helped to unload the automobiles at Port Said and drive east. The Socony bureau was called on. It got busy, and routed the motor caravan across Arabia, through Mesopotamia and to its destination, which was reached without mishap.

The Socony Touring Service was established in 1926 as a supplement to the map service of the Standard of New York. That year it had 14,000 requests for touring information. Last year the number of requests grew to 70,000 and this year it is expected the number will exceed 150,000. Requests for touring information have been received from every state in the United States and most of the provinces of Canada. Occasionally a request drifts in from some country outside North America.

The bureau's business this year was stimulated by a series of seven advertisements in the Saturday Evening Post. Four of these advertisements dealt with the history, beauty and the romance of New York state. Three double page advertisements pictured with drawing and word the history, scenery and industry of New England.

The advertisements were run in late spring, when many persons were planning their summer's vacation. Their contents are probably well remembered by many oil men who themselves, with thousands of motorists, yearned when they read the caption of the initial advertisement, "Romance Calls You to the Genesee Country in Central New York."

"Explore the Catskills. See Rip Van legend," read the advertisement. "Come to the Genesee country and see what has happened to the forest-covered wilderness through which Father Dallion journeyed in 1626."

Father Dallion was the Franciscan priest who discovered the Seneca oil spring near Cuba, N. Y., in 1627, the first white man to tell about petroleum on the North American continent.

"Nowhere is there more to tempt the eye and the mind of the traveller," the advertisement continued. "Go to Belvidere and see Judge Churchill's old home where Lafayette was entertained. Visit Caneadea, where the most western village of the Seneca nation once thrived. Here Moses Van Campen and Horatio Jones ran the gauntlet to the old council house. Go on only half a mile where the Genesee river takes a mad hundred-foot plunge—a cataract of unbelievable beauty."

Who did not wish to fill up the tank and take the road when he read a few weeks later: "Motor over the famous Palisades up through Bear Mountain park. Visit West Point and see the cadets at drill. Circle Storm King Mountain, beautiful as the Alps.

Explore the Catskills. See Rip Van Winkle's home town and the glade where he slept. Drive through beautiful Westchester, New York's suburban garden spot, where the Berkshires of New England tumble into little hills like waves along the shore. See where the headless horseman rode through Sleepy Hollow."

Then was told of perfect highways and romantic byways, friendly people and hospitable inns.

In later copy the wonders of the Adirondacks, the "land of lakes and mountains," were related in convincing style. Afterward was an appeal to let "the children see Niagara Falls while their minds are most impressionable."

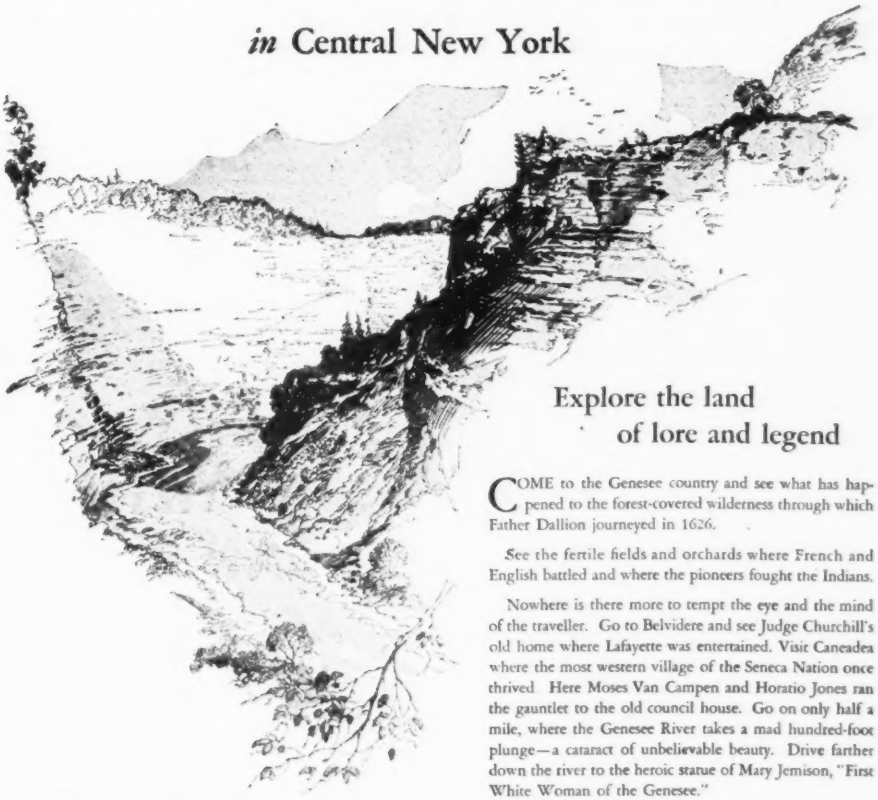
"Rove through all western and central New York," was a plea. "Here are the beautiful Finger Lakes. Here the Six Nations had their Long House. Here the tomahawk flashed. Here Leatherstocking and the Last of the Mohicans trod softly the avenging trails. Here is Chautauqua—'the most American thing in America' . . . . Go into the cities too, and see the industries that make New York the Empire state in commerce."

What soul so dead that he was not stirred by the appeal to see New York? And what mind was so impervious that it did not absorb the Socony idea?

Then to New England. A ride over the road taken by the memorable Paul Revere. The battleground at

ROMANCE *calls you to the* GENESEE COUNTRY

in Central New York



Explore the land of lore and legend

COME to the Genesee country and see what has happened to the forest-covered wilderness through which Father Dallion journeyed in 1626.

See the fertile fields and orchards where French and English battled and where the pioneers fought the Indians.

Nowhere is there more to tempt the eye and the mind of the traveller. Go to Belvidere and see Judge Churchill's old home where Lafayette was entertained. Visit Caneadea where the most western village of the Seneca Nation once thrived. Here Moses Van Campen and Horatio Jones ran the gauntlet to the old council house. Go on only half a mile, where the Genesee River takes a mad hundred-foot plunge—a cataract of unbelievable beauty. Drive farther down the river to the heroic statue of Mary Jemison, "First White Woman of the Genesee."

At Genesee flourished the village of Big Tree, where in 1797 the Indians transferred their lands to the whites and moved away forever. At Cuylerville is the site of Little Beards Town, once the capital and metropolis of the Seneca Nation. At Perry, you see the home of President Chester A. Arthur. And in the beautiful residential city of Rochester are the University of Rochester and the magnificent Eastman School of Music.

Romance calls you to the Genesee country. Enjoy its glamorous beauty this summer. Bring your family and explore its fertile valleys and thriving hamlets. Good roads and clean, hospitable inns will welcome you.

THE Standard Oil Company of New York offers its Socony Touring Service to help plan your tour in New England and New York. Address Socony Touring Service (Room 2683), 26 Broadway, New York City.

You may also obtain fine road maps either by writing in advance, or at the 30,000 Socony stations.

The courteous service at these stations, and the uniform quality of Socony products, will add to the pleasure of your trip.

SOCONY

GASOLINE · MOTOR OIL

STANDARD OIL COMPANY OF NEW YORK

This copy, run in the spring, was designed to help the motorist make up his mind to tour this summer in New York state. It was carried, page size, in the Saturday Evening Post

Concord and the homes of Emerson, Longfellow, Whittier and Hawthorne.

"Follow the trail to the white farmhouse where Calvin Coolidge took the oath by the light of a kerosene lamp," one advertisement implored. "Stand by the bridge where the minute men drove back the redcoats and 'fired the shot heard 'round the world.' "

"And while you are making history live again, visit the industries of modern New England," it was added. "Their products go all over the civilized world."

The concluding advertisement read:

"Come to New England because its hills and woods and beaches are a glorious playground.

"Come and see where history was made.

"Come to the colleges where education in America began, and from which men and women have carried culture and ideals across this great continent.

"But come also because New England is the nation's workshop. Here Yankee ingenuity made the inventions from which great businesses have grown. Here the skill of the worker has been passed down for generations from father to son. Here, in almost every small town, is a factory whose product is known and used, not only in America, but all over the civilized world.

"There is no better education in Americanism for your children than a tour through this lovely and friendly land. Many of the industries are open to visitors. All historic shrines are open. And everywhere you will find clean, inexpensive inns, and hospitable people eager to make you welcome.

"Bundle the children into the car, put in the luggage too, start your motor, and come."

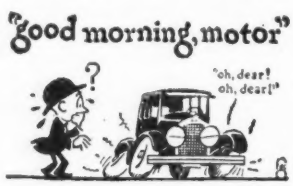
That is how Standard of New York sold the people of the United States on the wonders of its marketing territory. It tried to draw every car owner in the 48 states and the District of Columbia into New York and New England.

It knew it would not get all the increased gasoline and oil business but it knew it would get a good share.

In every advertisement was a paragraph or box telling of the Socony Touring Service and the fact that good road maps were obtainable from the bureau of any of the 30,000 Socony dealers in the territory. Little was said of the company's merchandise except two lines that the uniform quality would add to the pleasures of the trip.

In July the bureau was receiving 500 to 600 letters a day and the 40 employes were answering about 500 personal calls at the bureau, which is on the ground floor of the New Street entrance to 26 Broadway. Telephone and telegraph inquiries were averaging about 50 calls a day.

STANDARD OIL COMPANY OF NEW YORK



"GOOD morning, Boss. Say, talking about horrible examples, you ought to look over that car next door. He was just coughing the sad tale across the hedge. Seems that his boss is a bargain hunter—drives all over town looking for cheap hobo gas. Whenever he sees a pump with a cut price, he fills the tank. Buys his oil at the same places. If ever a motor had the T. B. that poor car has it. He's so choked up he can hardly inhale his gas. His bearings are so worn and loose, it sounds like a milk wagon going over cobbles even when he's idling. Says his cylinders are in terrible shape. When he was new a year ago, he did eighteen to the gallon and only gets about seven now. Ain't it a pity, Boss? There ought to be a law against abusing motors."

ANY CAR OWNER CAN DO AS WELL—

AND MANY DO

OUR own big automotive fleet is fueled with Socony Motor Gasoline and oiled with Socony Motor Oil exclusively.

Some of these hardworking trucks and cars have gone 90,000 and 100,000 miles without needing overhauling.

Any car owner who standardizes on Socony products can do as well—and many do.

Socony Special will silence that knock

If you have a new car with a high compression engine or an old car with carbon in the cylinders, try Socony Special—a particularly creamy cut of the world's best anti-knock gasoline. It gives you better pick-up, more power on hills, and a lot of extra comfort. It's equally good in cold and warm weather.

STANDARD OIL COMPANY OF NEW YORK

Newspaper copy of the Standard Oil Co. of New York makes much of the fact its own big fleets of cars are oiled and fueled exclusively with the company's products—and, as a result, go long distances without the need of overhauling. Talks by the motor with his "boss" are a standing feature

Although the name is the Socony Touring Service the Standard of New York does not directly do the work. This is done by the General Drafting Co. of New York, which publishes road maps for many of the Standard and other large oil companies. This company also is the official publisher of detour maps for many states which work gives it up-to-the-minute road information. Road reports are received from all states and posted in the bureau.

A car is kept on the roads of Standard of New York territory constantly and last fall, after the Vermont floods, a 10-day survey of roads was made so patrons of the service might have authentic information about road conditions in Vermont.

The Standard of New York expects that more than 2,000,000 maps will be distributed by the bureau, its stations, and dealers and by automobile clubs and others before the end of this year. It has maps of New York and the New England states.

In addition, the Magnolia Petroleum Co. of Dallas, Texas, and the General Petroleum Corp., of Los Angeles, Cal., subsidiaries of the Standard Oil Co. of New York, have maps covering the states in which they do business.

When an inquirer asks for a route from one place to another, a map is given or sent him with the route drawn in with green pencil. Often a letter is sent with the map telling of points of interest along the way. Callers at the bureau are told of interesting things they may look out for along their way, or which they may see by taking sidetrips.

The mail inquiries are the most expensive, postage alone averaging 8 cents per mailing piece. The maps and letters are sent in a combination envelope which carries first class postage for the letter and lower class postage for the other matter.

The advertising campaign which tied in with the touring service was conducted by Barton, Durstine & Osborne of New York. Portfolios of the New York series advertisements that appeared in the *Saturday Evening Post* were sent to about 1800 clubs, chambers of commerce, and newspapers in New York state and about 14,000 extra large size reproductions were distributed to dealers and service stations, hotels and banks for posting.

About 14,000 portfolios of the New England series were distributed to New England manufacturers, clubs, banks, newspapers, public officials and legislators, grange societies, colleges, and contributors to the support of the New England Council, an organization engaged in the promotion of New England industry. About 18,000 large sized reprints of the New England advertisements were distributed to dealers and service stations, banks and hotels for posting.

The portfolios of the New England series were distributed by the New England Council, whose executive vice-president, Dudley Harmon, sent a letter with each portfolio which read in part:

"In harmony with the New Eng-

land Council's policy of stimulating all organizations and interests having most at stake in the future of New England to greater activity and coordination of effort in the effective marketing of what they and New England have to sell, the Standard Oil Co. is about to render a unique and constructive service to New England.

"In the forthcoming issues of the *Saturday Evening Post* the company will publish a series of three double-page illustrated advertisements, each of which will carry this message: "Come to New England!" The advertisements in this series emphasize, respectively, New England's historic scenes and associations, her recreational resources, and her business development. Each advertisement not only emphasizes one of these appeals but each also carries more briefly a reference to the other two. Never before, since the council was organized has New England's trifold appeal been so elaborately, widely and effectively presented.

"At our request, the Standard Oil Co. has furnished us advance proofs of the pages that will appear in the Post, and I take pleasure in sending you a set herewith."

Few persons will not realize the effectiveness of having copies of these advertisements go to business and civic leaders through the medium of a disinterested agency rather than from the Standard direct.

And all the while the Standard kept hammering away for local trade through newspaper advertisements of its gasoline and motor oil. The feature of these advertisements was in the interviews with automobiles. Each advertisement bore the salutation "Good Morning, Motor," and was illustrated with a small sketch of a motor car, sometimes in good shape and sometimes in pretty wobbly condition. All classes of car drivers were appealed to.

In one advertisement the sketch showed a woman loading things into the rear compartment of a sedan. Following her greeting, the motor replied:

"Good morning, Ma'am. I see you've loaded in everything but the kitchen stove—guess we are headed for the farm. Too bad the boss isn't going. No offense, but I always feel easier on a 300-mile trip if he is along to keep track of oil and water. By the way, if I were you, I would drive over to the garage now and let them change my oil. It's pretty thin and dirty. Only take a few minutes and I'll run more smoothly all day. Remember I turn over 2000 times a minute, 33 times a second. If it wasn't for the protecting film of oil my bearings would burn out in a few minutes. Bad oil can't stand the heat, gums up bearings, and gives me indigestion.

"And say, I know you won't think I'm rude if I suggest that you buy good gas for this trip. Last time you picked up ten gallons along the way, at a bargain, which pretty nearly did me in. I was panting like a truck in an excavation towards the end. I really am a delicate and nicely adjusted bit of machinery and I need good gas and oil."

This was followed with a sales talk about the company's motor oils and, under a subheading, "Thunder in the Rear," was discussed the need for changing differential and transmission lubricants twice a year. A coupon making easy a request for touring information was also attached.

In another advertisement of its motor oil Standard said some members of its own fleet had traveled 90,000 and 100,000 miles with only minor repairs.

After the company introduced its Socony Special anti-knock gasoline its newspaper advertisements usually contained at least one paragraph promoting this product.

Finds Public Wants Pay Toilets at Station

CHICAGO, Sept. 16.—An oil dealer who has his service station at the point where Addison street reaches the city limits of Chicago recently did something new and possibly unprecedented in the business. He had a large lavatory built in his station and provided two small rooms with complete toilet facilities, both so arranged that their doors may be equipped with coin locks.

When asked about the innovation he said that he did it because the public demanded it. "People are willing to pay for the service they get," he said. "They are not only willing but they prefer to pay for their accommodations. They do not like to feel under obligations for free service of any sort. Enough of my customers suggested to me that I put coin locks on the toilet doors that I arranged to do so and I believe the results will be good."

The station is not of an unusual sort. It is not a city station but a highway station although it is within the city limits of Chicago. The community is not closely built up. It is approximately 9 miles directly west of "Cubs Park" on a trunk highway which marks Chicago's corporate limit on the west.

East of the station for several blocks is a community of residences. North of it for one block is a continuation of that same residence district. But two city blocks north is a flying field. Immediately south of the station is a golf course. Across the paved highway is a vast acreage of Cook county's forest preserve. In short, the station is almost in the country, literally and legally.

It is not a "super service" station if that means a variety of departments, for it has only two, gasoline and oil sales and a small restaurant of about six tables and eight or 10 stools at a counter. Nevertheless, it is the only restaurant for more than a mile and the only oil station for quite a distance. Gallonage is good and so is the restaurant business, but not as good as the management hopes it soon will be.

In this remote spot where motor traffic is so heavy, toilet facilities are hard to find. Motorists often come to the station for access to a comfort station and for nothing else. Aviators, golf players and hitchhikers from the forest preserve fill the refectory at meal times. Naturally enough they want to wash up before they attack the menu. So the wash rooms are in great demand.

Late Tank Wagon Change

PHILADELPHIA, Sept. 18.—It was reported late Tuesday that on Sept. 19 Atlantic Refining Co. will reduce tank wagon and service station prices of gasoline 1 cent through Pennsylvania and Delaware, making tank wagon price 17 cents and service station 19 cents in both states, exclusive of state taxes.

Louisiana Severance Tax Is Upheld

(By Telegraph)

HOUSTON, Sept. 18.—The Louisiana severance tax of 1928, which levies an average of about six and a quarter cents a barrel against crude oil produced in the state, was upheld in a federal court decision handed down at New Orleans Sept. 17.

Appeal will be taken to higher United States courts by the Ohio Oil Co., which brought the suit on behalf of itself and other Louisiana producers, charging unconstitutionality because of discriminatory provisions in the law.

The essence of the federal court decision lay in the finding that "the proofs establish that the prices of oil as posted in the several fields are determined according to gravity."

Principal ground for attacking the law was in the oil company's contention that the establishment of specific gravity as a petroleum tax basis was both discriminatory and arbitrary.

Articles dealing with the severance tax laws provisions in detail appeared on page 25 and 52 of the July 25 issue of NATIONAL PETROLEUM NEWS.

LOS ANGELES, Sept. 14.—Baron J. C. Van Eck, Shell Oil Co., recently left for New York headquarters after spending several days in California inspecting oil conditions.

Along the Air Lanes

New Jersey Standard's New Plane

NEW YORK, Sept 13.—Captain E. E. Aldrin, manager of aviation of the Standard Oil Development Co. and John L. Baker, aviation sales promoter, Newark branch of the Standard Oil Co. of New Jersey, left Sept. 15 for Los Angeles in the company's new Buhl Special Airsedan.

The main purpose of the trip is to make tests on oils. While in Los Angeles Captain Aldrin will attend a meeting of the Committee on Design of the Society of Automotive Engineers, Aeronautic Division, of which he is chairman. He will also take delivery of the Lockheed-Vega plane, which the company recently purchased. Captain Aldrin will fly the Lockheed-Vega plane back via New Orleans, arriving in New York around Oct. 1, while Mr. Baker will return direct to New York with the Buhl Airsedan.

Captain Aldrin, by the time he reaches New York, will have covered well over 5000 air miles on this trip.

* * *

Standard Oil Co. of Indiana's three motored monoplane "The Stanolind" spent Sept. 8 to 18 in Iowa. The plane first visited the new airport at Moline, Ill., and treated city officials of the Tri-Cities to bird's-eye views of their flying field. Later it visited Cedar Rapids, Sioux City, and Fort Dodge, Ia.

Since the Standard acquired the machine on May 21, 1927, it has flown more than 70,000 miles and has carried upwards of 5000 passengers. This was accomplished with 800 hours in the air. Standard Oil directors have traveled 67,226 passenger miles in the plane, but of course this has been accomplished by several traveling together.

On July 26, Robert W. Stewart, chairman, E. G. Seubert, president, Allan Jackson, R. H. McElroy, E. J. Bullock, R. E. Humphreys, Amos Ball and L. L. Stephens had breakfast in Casper and dinner in Chicago, by using the Stanolind.

The Texas Corp's. tri-motored Ford airplane arrived at the Cleveland, Ohio, airport Sept. 14 on its nation wide tour. The plane was piloted by Capt. F. M. Hawks, accompanied by his wife and Mr. Turner of the Chicago office of The Texas Corp. M. E. Glass and D. N. Myers of The Texas Distributing Co. of Cleveland, greeted the flyers. Many Clevelanders inspected the plane. The nation wide tour is being made in the interests of commercial aviation, demonstrating the practicability of such extended flights on schedule, and also as a means of testing the merits, on a large scale, of Texaco aviation gasoline and oil.

* * *

Carl Cromwell of Big Lake, Texas, general superintendent of field operations for the Texon-Group 1 companies, has purchased an airplane to be used in the Permian salt basin oil development areas.

* * *

A. F. Taliaferro, acting chief of the airport section, U. S. Department of Commerce, has advised the Cisco, Texas, Chamber of Commerce that a government specialist will soon visit the Eastland county oil town to consider establishment of a federal airport.

* * *

Charles F. Pedley, assigned to the Pitcairn Mailwing Plane No. 6 of the Texas Air Transport fleet, has had a phenomenal rise in aviation. In 1921-1922, at the time of the Mexia boom, he was an "aerial newsboy," carrying copies of the Mexia Daily Sun by airplane to the central east Texas fault-zone oil fields. He later carried the first airmail from Fort Worth to Houston and Galveston.

* * *

Patronage of the air mail from Tulsa to Ponca City, which is on the main line Dallas to Kansas City, is increasing. When the service was started early in July, shipments from the Tulsa postoffice averaged about 10 pounds daily each way. Thirty to 40 pounds is the usual load each way now.

* * *

The Aeronautic division of the American Society of Mechanical Engineers will meet in Wichita, Kans., Sept. 21 and 22. The program consists of papers of interest to technical men in the aircraft industry. Curt L. Henderson, vice-president of the Vickers Petroleum Co., is head of the committee on arrangements for the convention.

* * *

The University of Wichita has established a school of aeronautical engineering. Enrollment at the outset is being limited to about 40.

* * *

The Summit Drilling Co.—T. A. Creekmore and J. A. Wolfe—of Tulsa continued their customary trips during the week to Seminole and other fields where they have tools in operation. They own a Stearman.

* * *

Spartan Aircraft Co., of Tulsa, announces the completion of the first units of its new factory. It is on a 30-acre site, five miles northeast of Tulsa and is near the new municipal airport. The building just completed is 116 feet wide and 340 feet long. Willis C. Brown is president of the company and W. G. Skelly is chairman of the board.

* * *

Standard Oil Co. of New Jersey has a hangar for aircraft under construction at Newark Airport, Newark, N. J. The hangar will probably be completed about Oct. 1.

* * *

A. C. Woodman, president of the Acewood Petroleum Corp., New York, spent several days in California the first part of September. He made the trip from San Francisco to Los Angeles Sept. 12 in the large Richfield airplane in company with some of the Richfield Oil Co. officials.

* * *

Five passengers and a pilot took the air from the Cleveland airport early Sept. 16 in a Hamilton all-metal plane. Less than three hours later they were due in Chicago, and thus passenger air transportation service between Cleveland and Chicago was inaugurated. Trip by train takes about seven hours.

This is the second passenger air line out of Cleveland. Regular service between Detroit and Cleveland has been carried on for some time. The Chicago service is maintained by Universal Air Lines, which also has service from Chicago to St. Paul, Minneapolis and Fargo, N. D.

More Freight Rate Cases To be Heard Soon

(By Telegraph)

TULSA, Sept. 18.—Hearings at Dallas, Tulsa and Kansas City in the new southwestern oil rate case will be held within the next two months, it was indicated after a conference between all litigants and Examiner Keeler of the Interstate Commerce Commission at St. Louis Sept. 15.

The litigants asked that Examiner Keeler be assigned to the case, and agreed that natural gasoline and crude oil rates be excluded from consideration but were not in accord on the proposal that Kansas rates be involved or that rates to Kansas City and St. Louis be considered again.

Mid-Continent refiners will object to consideration of the Kansas City and St. Louis rates which were fixed only recently as a result of the 1925 Mid-Continent case.

* * *

KANSAS CITY, Sept. 14.—About 100 shippers and receivers of petroleum products were heard by two Interstate Commerce Commission examiners at the hearing of the Nebraska oil rate case here Sept. 12, 13 and 14. Details of the shippers' and receivers' complaints and the defense of the railroads will be published in NATIONAL PETROLEUM NEWS for Sept. 26.

"Bill" Newlin Killed In Auto Smash

NEW YORK, Sept. 15.—"Bill" Newlin, of the Philadelphia office of James B. Berry Sons Co., was killed last Friday. The automobile he was driving collided with a light motorcar at the intersection of Sugartown and Waterloo Roads, near Philadelphia, hurling him through the top of his car and against a telephone pole, fracturing his skull and breaking his neck. He died instantly.

William Ver Planck Newlin, Jr. was born in Rochester, Minn. in 1898. Most of his early years he lived in Texas. After serving as a lieutenant in the war he took a job in 1919 with the Atlantic Refining Co. in the manufacturing division, where he gained his first experience in the oil industry.

Early in 1922 he left to accept a position with James B. Berry Sons Co. at Philadelphia. He was made manager of the Philadelphia office of this company in March, 1923, and in August, 1926 was promoted to general sales manager of the company's eastern division.

LOS ANGELES, Sept. 14.—The Gilmore Oil Co. recently acquired the business and goodwill of the Inland Oil Co., gasoline distributors in the Stockton and Sacramento districts.

Specifications for Natural Gasoline Motor Fuels

By J. C. Chatfield
N. P. N. STAFF WRITER

TULSA, Sept. 17

THE Natural Gasoline Association of America has adopted tentative specifications for finished motor fuels containing high percentages of natural gasoline, according to an announcement today by A. V. Bourque, secretary. The new specifications will be effective Oct. 1.

Three grades are included in the specifications, each grade being designed to give the best possible motor performance under certain temperature conditions. Grade 90 is recommended for use in motor cars during the summer season in climates where the temperature averages around 90 degrees F. Grade 50 is recommended for use in moderate climates and at seasons of the year where temperatures average around 50 degrees F. Grade 10 is the winter fuel recommended for temperatures approximating 10 degrees F. Complete specifications for each grade are given in Table No. 1.

For a number of years the Natural Gasoline Association has had no official specifications for blended motor fuels. When the association was organized shortly after the war it was found necessary to create standards for blends because of the fact that the industry had gotten into disrepute because of kerosene-natural gasoline blends sold as motor fuel by a number of irresponsible manufacturers. Specifications for satisfactory blends were published and used for some time. When refiners began to consume greater quantities of natural gasolines at their plants the marketing of blends was given up largely and the specifications were dropped.

As a result of research work of the Natural Gasoline Association in the past three years it has been developed that much larger quantities of natural gasolines can be used in motor fuels than formerly was thought possible. Fifty per cent blends have been found desirable to produce motor fuels which give excellent motor performance through quick starting and, acceleration without loss of power or excessive fuel consumption.

The only bar to the use of large percentages of natural gasoline which was found in the early experimental work was the danger of vapor-locking of carburetors on cars where artificial heat was applied to the manifold. Later research developed that vapor locking could be prevented by controlling the vapor pressure of the finished gasoline.

In the modern natural gasoline plant equipped with fractionating columns it has been found to be a simple matter to produce natural gasolines with low vapor pressures. This is done by eliminating fixed gases from the plant product without excessive weathering losses.

Following is a statement issued by the association in connection with the new specifications:

"On account of its high volatility, natural gasoline has proven to be a very desirable component of present day motor fuels. The extent to which natural gasoline may be used in preparing blended motor fuels is limited solely by the vapor pressures of the fuel at the maximum operating temperature of the gasoline feed system of the automobile. If the vapor pressure of the motor fuel is too high for the temperature conditions under which it is used, vapor-locking difficulties will be encountered.

"Several natural gasoline manufacturers have been marketing blended motor fuels containing very high percentages of the more stable grades of natural gasoline. This fuel has been most favorably received by the motoring public."

Table No. 1

Tentative Specifications for Blended Natural Gasoline Motor Fuels, Adopted by the Natural Gasoline Association of America. Effective Oct. 1, 1928

	Grade 90	Grade 50	Grade 10
Vapor Pressure at 90° F. not to exceed..... (lbs. per sq. in. absolute)	6.5	9.0	11.5
Initial boiling point not less than (°F).....	95	90	82
Temperature at 5% point (°F); not over.....	120	120	120
Temperature at 50% point (°F); not over	200-220	180-200	160-180
Temperature at 90% point (°F);	380-410	360-410	340-410
End point (°F)	425-450	425-450	425-450

Note: Vapor pressure by Reid method adopted by N. G. A. A. effective Sept. 1, 1928. Distillation test by A. S. T. M. method D-86-27 with following additional provisions:—Test to be made at a room temperature of not below 70 degrees F. Losses on distillation to be added to the percentage recovery in determining intermediate boiling points. Distillation test results based on a barometric pressure of 14.4 pounds per sq. in. absolute.

Review of Late Production News

DAILY average crude production in the country passed the two and one-half million mark for the second time in the last few weeks, totaling 2,504,900 barrels, for the week ended Sept. 15. This is an increase of 10,700 barrels over the week ended Sept. 8, according to American Petroleum Institute figures.

Crude oil imports decreased 122,143 barrels daily average the past week, to 187,143 barrels.

This brought total new crude supply to 2,692,043 barrels daily average, week ended Sept. 15, as compared with new supply of 2,803,486 barrels the previous week.

Oklahoma daily average increased 20,500 barrels, due to a gain of nearly 15,000 barrels in Little River, and a gain of 12,000 barrels in the St. Louis pool.

Winkler county in West Texas fell off 8200 barrels, to 166,300 barrels daily average. Howard county gained 3900 barrels.

Salt Creek, Wyo., gained 2400 barrels. Long Beach struck a 200,000-barrel daily average, a gain of 2500 barrels over the previous week.

Oklahoma-Kansas

BECAUSE of the open flow test on wells in the Little River pool taken to determine the potential for purposes of proration, and because of two large wells in the St. Louis pool, Oklahoma's daily average production for the week ended Sept. 15 showed a gain of about 20,000 barrels.

The effect of proration was not shown, as it was late in the week before operators started restricting production on the flush leases.

A drilling campaign in the Mission pool of Seminole county, now outlined by eight producing wells completed and shut in, has been delayed by agreement for two months. For a few days it appeared that upward of 100 wells would be started at once. As it is the pool will be held in its present condition until Nov. 15.

In the St. Louis pool, activity is stimulated by the big well of the Mid-Continent Petroleum Corp., in 20-7-5, which extends Wilcox production three-fourths of a mile east. The well is making around 4500 barrels a day.

What amounts to a new field for Oklahoma has probably been opened by the discovery of Wilcox sand production in the Allen pool located in Pontotoc, Seminole and Hughes counties, and southeast of the general Seminole district.

A well of the Sinclair Oil & Gas Co. found the top of the Wilcox structure at 4158 feet. The Wilcox is a prolific producing sand in several present Oklahoma fields. The Allen pool has been producing 20,000 barrels a day from Cromwell and higher sands.

Texas, New Mexico, Louisiana

TENTATIVE correlations of formations drilled in Lea County, New Mexico tests indicate the Marland Production Co.'s No. 1 Lynn wildcat, in 26-23S-36E, found the lime horizon of the Permian salt basin region exceptionally high.

If the top of the lime in the Lynn is 2800 feet, then the drill found this formation about 550 feet above sea level, or 35 feet higher than the Marland-Sholes, 11 miles south and two miles east in 19-25S-37E.

The Lynn test showed 100,000 cubic feet of gas at 2847-2849 feet. Total depth is 2850 feet. Heavy gas found at about the 2800-foot level has been mudded in the Sholes test and 6⅝-inch casing has been run back in the hole to drill deeper from total depth of 3030 feet.

Another geologically high test in Lea county is the Gypsy Oil Co.'s No. 1 state, in 34-21S-36E, which was shut down at 3071 feet to adjust title difficulties after it had found a show of oil in July. The Gypsy test got the brown dolomite 502 feet above sea level.

The best of four wells drilled in the Loving county, Texas, area of the salt basin region is the No. 1 Hubbard of Lockhart Bros., of El Paso. It flowed 300 barrels in six hours in the top of the Delaware formation at 4165-4175 feet. Earlier and smaller wells had produced from the lower part of the Delaware and required shooting before they would flow.

In the Gray county division of the Panhandle region, the Prairie Oil & Gas Co. finished its No. 2 in the H. Thut survey, making 1140 barrels the first 24 hours after being agitated. The well is in granite wash pay at 2665-2672 feet.

California

SANTA FE SPRINGS reported a total of 188 operations, ranging from locations to drilling wells, seeking the new Buckbee sand. Of this total, 119 are already drilling.

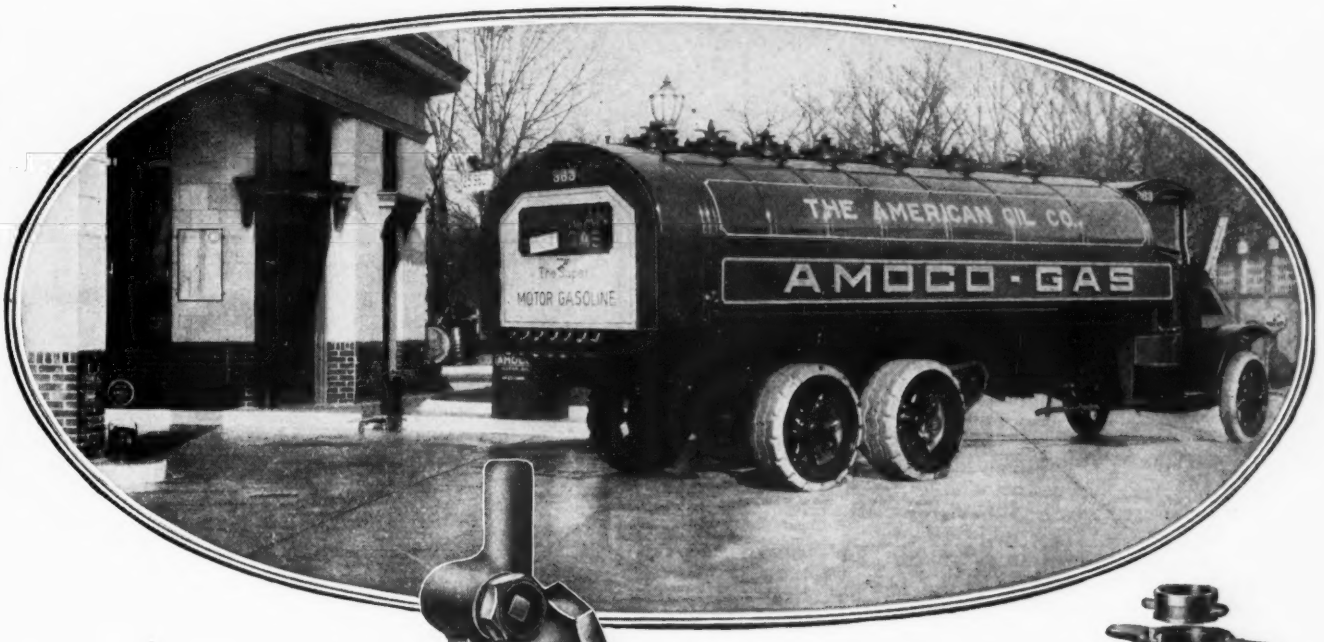
A meeting of operators in this field will be held in Los Angeles Sept. 20, when Governor Young's gas conservation committee will explain details of the tentative plan for handling the surplus gas that is expected from the new deep zone.

The discovery deep zone well is reported to be holding up to about 3500 barrels of 34 gravity oil. No other well has yet found the top of the deep sand.

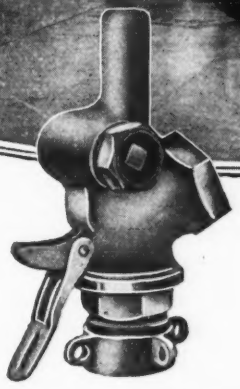
Long Beach furnished 9 new producers, with a total flush production of about 14,000 barrels, thus indicating an increase in the daily average production. One well on the edge of the Los Ceritos area indicates the possibility of the deep zone at Long Beach extending into that area. The well produced for a short time at the rate of 1500 barrels and sanded up. It is to be drilled deeper.

Rumors are current that Petroleum Securities officials would not now drill into the known deeper zone at Inglewood, and would also pinch their wells at Ventura Avenue in keeping with the conservation agreement that has been in effect for several months.

The company recently opened up its wells, and failed to pinch them in 20 per cent as is the practice of other companies. Within another week or so, five wells will be drilling in the new Elwood field in Santa Barbara county, where one well is on production. Plans are being made to erect a small natural gasoline plant in the field.



Amoco Tank Truck equipped with seven Wheaton Type A Faucets—like the one more clearly shown in the illustration at the left.



The American Oil Company Standardizes on WHEATON

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Water in Winkler Increases Ultimate, Reduces Potential, Yield

By Paul Wagner
N. P. N. STAFF WRITER

HOUSTON, Sept. 13

WHETHER or not the Winkler area, in the West Texas Permian basin, has reached its approximate peak of potential production is a question that is unanswerable on the basis of engineering data ordinarily applied in the oil country.

It is also a question as to what may be considered the actual, or exploitable, potential, as compared with the admittedly fictitious figures used in the prorating yardstick.

Based on hourly gages of wells and the test figures multiplied by 24 to gain a daily potential estimate, the Winkler area was rated capable of 2,294,671 barrels daily in the prorating period of Sept. 1-15, inclusive. This compares with allowable prorated production of 175,000 barrels daily.

Because of natural water drive conditions flushing the oil in the pay horizons and because of water encroachment on more than half the 330 Winkler wells, it is unthinkable that open flow production would be attempted even were there no prorating practice in effect.

The order of the appearance of water in Winkler wells does not hold true to laws usually governing encroachments in sand-pay fields. In fact, the vertical and lateral movements of water combine to create conditions of encroachment that are not directly comparable with other lime-pay fields.

Structurally high wells will often show water on completion, or in a few days, yet low wells will not be encroached upon for considerably longer periods. The fracturing and faulting that permits vertical intercommunication[1] of water in the several oil pays is responsible in such instances.

Lateral movements are more apt to represent edge or bottom water coning up the dip of the structure. Yet this is not always true, as found in field studies of engineers. In some cases top water has been proved responsible for encroachments.

It is impossible, therefore, to reach a basis in the Winkler area for measuring accurately the exploitable open flow production. As previously pointed out[2], the figure may be 30 per cent of the rated potential, or it may be only 20 per cent, but even at the lower of the two estimates no single field except Smackover ever exceeded Winkler's ability to produce.

Smackover's one-day peak of actual production was roundly 496,000 barrels, flowing wide open. Greater Seminole, then composed of three separate areas, exceeded Smackover when it attained roundly 527,000 barrels for one day but it was a district rather than a single field, although the productive area did not exceed the proved ground at Smackover.

The Powell field of the Woodbine fault-zone in central east Texas exceeded both Cushing and Santa Fe Springs when it attained a one-day peak of 356,000 barrels, but it dropped back to around 304,000 barrels the next 24 hours.

Who shall say that under similar conditions the Winkler area might not actually produce 1,000,000 barrels daily? If it did the performance would be sensational, but what of it? Potential production means nothing when considered in terms of one-day peaks. It is, over longer periods, of value in reaching estimates of ultimate yields.

Discounting Sept. 1-15 prorating potentials 80 per cent, the Winkler area is found to be capable of 458,934 barrels daily. If the reader thinks this figure too conservative, which it may be, he may increase it accordingly.

Water encroachment is gaining constantly in the Winkler area in the sense that no part of the field remains unaffected. Comparisons of water percentages in individual wells, however,

(*Continued on Page* 40)

Trend of Winkler Production Since Since January 1, 1928

Date	Number Wells	Per Well Daily Avg.
Jan. 1, 1928	39	1445.0†
Jan. 15, 1928	46	1736.6†
Feb. 1, 1928	58	1663.1†
Feb. 15, 1928	71	1697.0†
March 1, 1928	85	1544.3†
March 15, 1928	97	1950.0†
April 1, 1928	116	1792.0†
April 15, 1928	125	1660.0†
May 1, 1928	145	1819.0†
May 5, 1928	158	2037.8††
May 6, 1928	159	1104.5††
May 7, 1928	162	887.0††
May 15, 1928	163	892.0*
June 1, 1928	198	801.0*
June 15, 1928	206	695.0*
July 1, 1928	232	822.0*
July 15, 1928	257	738.0*
Aug. 1, 1928	281	614.4*x
Aug. 15, 1928	295	590.7*x
Sept. 1, 1928	328	532.1*x

†—pinched by operators.
††—production prorated May 5, 1928.
*—pinched under prorating.
x—daily average production for weekly period.

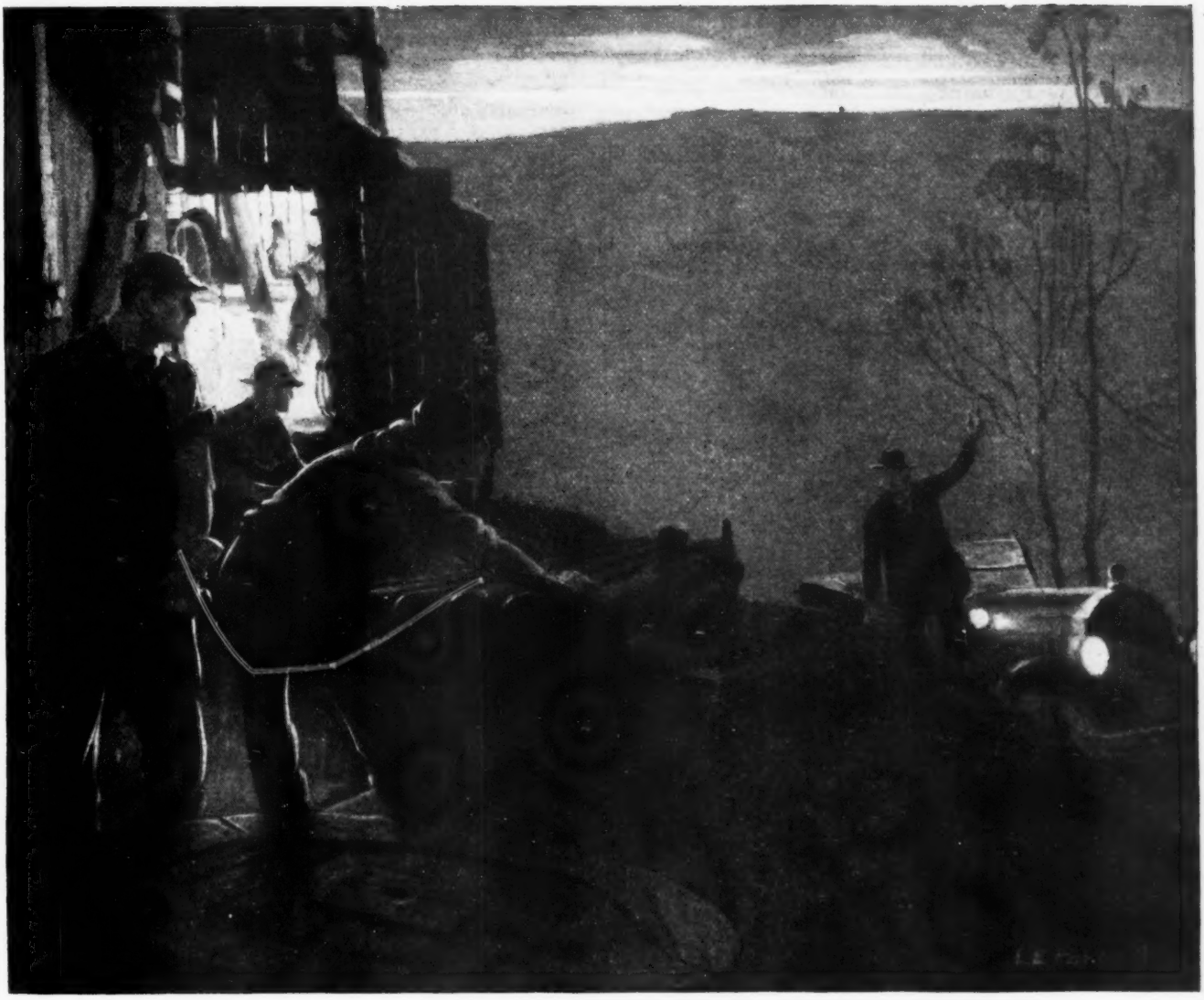
[1]NATIONAL PETROLEUM NEWS, page 46, Feb. 1, 1928.
[2]NATIONAL PETROLEUM NEWS, page 20, Aug. 15, 1928.

Records of Well Showing Water in Winkler Field

Company-Well	Section and Block	Depth, Feet	Oil Temp.	Bbls. Oil, 8-15-28	BS&W Pct., 8-15-28	Water First Appeared
Atlantic Oil Producing Co.						
A-5	34-B5	3043	70	1073	16	4- 7-28
A-6	34-B5	2995	65	1033	16	5-10-28
B-1	44-B26	2936	70	282	OK	6-10-28
C-1	33-B26	2978	70	...	85	5-20-28
D-1	29-B5	3085	70	919	33	12-23-27
D-2	29-B5	2983	70	...	32	1- 3-28
D-5	29-B5	2927	70	...	OK	5- 4-28
D-6	29-B5	2936	70	...	OK	4-26-28
E-1	41-5B	2793	70	...	70	2-13-28
E-2	41-B5	2720	70	771	70	6-11-28
E-4	41-B5	2965	70	1160	25	5- 4-28
Cranfill & Reynolds, Inc.						
A-1	28-B5	2887	65	502	4	2-12-28
A-2	28-B5	3010	65	...	25	5- 4-28
B-1	45-B26	3080	65	148	OK	8- 4-28
C-2	33-B26	2762	65	...	OK	5- 5-28
D-1	33-B26	2820	65	882	30	6- 4-28
E-1	33-B26	2785	70	...	80	6-13-28

Company-Well	Section and Block	Depth, Feet	Oil Temp.	Bbls. Oil, 8-15-28	BS&W Pct., 8-15-28	Water First Appeared
Gulf Production Co.						
A-1	34-B5	3014	70	919	10	12-23-27
A-2	34-B5	3070	65	...	1	8- 4-28
A-3	34-B5	3060	70	1055	15	1-27-28
A-4	34-B5	2933	70	...	70	1-11-28
A-5	34-B5	2880	65	1022	35	2-29-28
A-6	34-B5	3015	65	...	70	2-11-28
A-7	34-B5	2897	65	885	16	4- 6-28
A-8	34-B5	3045	65	...	25	7- 8-28
A-9	34-B5	2935	70	...	65	3- 9-28
A-11	34-B5	3050	70	...	60	4-27-28
A-12	34-B5	3003	65	...	15	6-21-28
A-26	34-B5	2806	70	...	87	8- 4-28
B-10	45-B26	2695	65	...	1	3-24-28
B-18	45-B26	2802	65	922	OK	7-20-28
B-21	45-B26	2795	65	...	OK	7-20-28
C-13	40-B5	2987	70	...	57	4-27-28
C-15	40-B5	3077	65	910	81	6-15-28

(*Continued on Page 36*)



At the crack of Dawn

At two in the morning a sleepy voice answered the telephone. A voice not so sleepy wanted equipment. And he wanted it quickly . . . 89 miles away.

Then over roads, now rutty . . . now muddy . . . now no road at all . . . but on, somehow . . . until the man who wanted the equipment got it—at the crack of dawn.

Sleepless nights and muddy roads can't matter to "Oilwell" service because it's a service to *oil men*. And it will be ready, always—to speed operations, to reduce shutdowns, to keep the drills and the wells working—to help this fellow and that fellow.

OIL WELL SUPPLY CO.

NEW YORK—LOS ANGELES—PITTSBURGH, U.S.A.—SAN FRANCISCO—TAMPICO—LONDON

WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

Records of Well Showing Water in Winkler Field

(*Continued from Page 34*)

Company-Well	Section and Block	Depth, Feet	Oil Temp.	Bbls. Oil, 8-15-28	BS&W Pct., 8-15-28	Water First Appeared
Marland Production Co.						
A-1	29-B26	....	...	385	OK	.....
A-3	29-B26	....	65	....	35	8- 4-28
A-4	29-B26	....	65	1173	3	8- 4-28
A-6	29-B26	....	70	1347	88	6-24-28
Humble Oil & Refining Co.						
A-1	34-B5	2729	70	363	91	2-10-28
A-2	34-B5	2564	65	2110	Dead	6- 3-28
A-3	34-B5	2898	70	660	...	5- 4-28
A-4	34-B5	2890	70	...	90	5- 4-28
A-5	34-B5	2978	65	898	50	5-22-28
A-6	41-B5	2814	70	...	80	3- 9-28
A-7	34-B5	2924	65	1476	60	3-30-28
A-8	34-B5	2915	70	...	95	5-15-28
A-9	.....	2678	70	...	90	7-20-28
A-10	41-B5	2864	65	...	65	3-30-28
A-11	41-B5	2884	65	...	35	5-15-28
A-12	34-B5	2950	70	...	90	4-20-28
A-13	34-B5	2841	65	...	40	5-18-28
A-14	34-B5	2671	70	...	35	6-29-28
B-1	29-B5	2968	70	551	88	12-15-27
B-2	29-B5	3010	70	1084	90	2-24-28
B-3	29-B5	3028	65	...	OK	3- 8-28
B-5	29-B5	2924	65	...	OK	3-30-28
B-6	29-B5	2961	70	...	70	4-19-28
C-1	32-B26	2843	78	...	40	7- 4-28
C-2	32-B26	2880	65	402	90	5-30-28
C-3	32-B26	2892	65	420	10	6-15-28
C-4	32-B26	....	...	301	50	6-15-28
C-5	32-B26	2830	80	...	74	5-21-28
C-7	32-B26	2840	70	...	50	8- 4-28
C-8	32-B26	2870	70	...	70	7-20-28
Independent Oil & Gas Co.						
1	42-B5	3095	65	1452	10	6- 5-27
A-1	34-B5	2815	70	972	50	12-14-27
A-2	34-B5	2862	70	...	15	12-14-27
A-4	34-B5	2957	65	...	OK	5- 4-28
A-5	34-B5	2963	70	...	50	5- 4-28
A-6	34-B5	2902	65	...	5	5-30-28
A-7	34-B5	2948	70	...	40	8- 4-28
A-8	34-B5	2963	70	...	95	7-20-28
B-1 (Howe)	44-B26	3043	65	61	10	3-15-28
Vardeman 1	41-B5	2743	70	...	92	12-14-27
Vardeman 2	41-B5	2794	70	1012	93	12-14-27
Vardeman 4	41-B5	2882	70	...	78	4- 6-28
Vardeman 5	41-B5	2710	70	...	85	4-20-28
Vardeman 6	41-B5	....	...	...	50	8-15-28
Magnolia Petroleum Co.						
A-1	29-B5	2935	70	630	50	1-24-28
A-2	29-B5	2924	70	...	65	12-15-27
A-3	29-B5	2900	65	...	2	3- 2-28
A-4	29-B5	2888	65	630	30	1-23-28
A-5	29-B5	3189	70	...	50	1-11-28
A-6	29-B5	2887	65	...	20	2-24-28
A-7	29-B5	3110	65	...	16	3-30-28
A-8	29-B5	3005	65	...	20	4-21-28
Murchison Oil Co., and Cranfill Bros.						
A-1	35-B5	2727	80	1598	50	6- 8-28
A-2	35-B5	2710	70	1215	18	.....
B-3	35-B5	3050	70	...	85	2-16-28
B-4	35-B5	....	70	....	75	6-22-28
H-1	33-B26	2879	65	1505	60	.....
Pure Oil Co.						
A-1	41-B5	2861	...	...	85	12-17-27
A-2	41-B5	2940	...	...	41	1-31-28
A-3	41-B5	2759	...	...	95	1-25-28
A-4	41-B5	2792	...	...	96	4- 3-28
A-5	41-B5	2766	...	...	66	4- 4-28
B-2	34-B5	2970	...	...	12	4-25-28
B-3	34-B5	2952	...	...	25	.....
B-4	34-B5	2933	...	...	84	3- 2-28
B-5	34-B5	2763	...	...	?	4- 7-28
B-7	34-B5	2758	...	...	?	5-20-28
B-9	34-B5	2545	...	...	34	5-25-28
B-11	34-B5	2925	...	...	OK	5-15-28
B-12	34-B5	2950	...	...	2	4-25-28
B-13	34-B5	2941	...	...	OK	5-24-28
Roxana Petroleum Corp.						
B-1	29-B5	3072	70	759	Dead	3-10-28
B-2	29-B5	3053	70	...	80	3- 2-28
C-1	29-B5	2885	70	1150	80	1-14-28
C-2	29-B5	2942	...	...	Shut in	1-14-28
C-3	29-B5	2912	65	...	OK	3- 4-28
C-4	29-B5	2970	70	...	40	3-16-28
C-5	29-B5	2935	65	...	OK	1-14-28
C-6	29-B5	2898	70	...	OK	5- 4-28
C-7	29-B5	3020	70	...	2	4-17-28
C-8	29-B5	3003	70	...	2	4-27-28
D-1	41-B5	2791	70	600	95	3- 9-28
D-2	41-B5	2783	70	...	90	4-13-28
D-3	41-B5	2930	70	...	80	4-13-28
D-4	41-B5	2893	65	...	40	5- 9-28
E-1	40-B5	2997	70	...	80	7-14-28
E-2	40-B5	2762	65	447	OK	7-14-28
E-3	40-B5	2685	65	...	3	8-10-28
The Texas Co. and Roxana						
A-1	29-B5	3043	70	358	95	3- 2-28
A-2	29-B5	3083	65	...	Dead	4- 5-28
A-3	29-B5	3084	70	1066	50	3-10-28
A-4	29-B5	2988	70	....	OK	3- 9-28
Republic Production Co.						
A-1	45-B26	2870	70	2320	40	4-11-28
A-2	45-B26	2752	63	...	OK	4-11-28
B-1	41-B5	2495	70	...	30	6- 8-28
B-2	41-B5	2980	70	743	95	5- 6-28
B-3	41-B5	2931	70	...	45	4-23-28
C-1	42-B5	2615	70	...	45	6-20-28
C-2	42-B5	....	65	897	95	8-10-28
Southern Crude Oil Purchasing Co.						
Tract 67-A-1	42-B5	3049	70	135	20	1-14-28
Tract 67-A-2	42-B5	3075	70	88	36	4-27-28
Tract 67-3-A-2	4-B12	3114	65	526	46	5-18-28
Tract 67-B-1	44-B26	3085	65	495	8	4-11-28
Tract 67-B-2	44-B26	3120	65	...	24	4- 2-28
Tract 67-3-B-1	33-B26	2830	65	1443	7	8- 4-28
Tract 67-3-B-2	33-B26	2765	65	...	25	8- 4-28
Tract 67-1-C-1	33-B5	2988	65	...	33	1-14-28
Tract 67-1-C-2	33-B5	3053	65	470	40	1-14-28
Tract 67-1-C-4	33-B5	3028	65	...	44	1-14-28
Tract 67-1-C-3	33-B5	3030	65	730	35	1-14-28
Tract 67-1-C-5	33-B5	2925	65	...	6	1- 9-28
Tract 67-1-F-1	33-B5	3023	70	...	20	1-14-28
Tract 67-1-F-3	33-B5	3035	70	...	25	3- 9-28
Tract 67-1-F-4	33-B5	3008	70	...	55	3- 9-28
Tract 68-3-A-1	35-B5	2730	70	217	32	6-23-28
Tract 68-3-A-2	35-B5	3114	80	...	100	5-10-28
Tract 88-A-1	44-B26	3027	65	795	5	2-16-28
Tract 88-A-2	44-B26	3100	65	...	20	4- 6-28
Tract 88-B-2	4-B12	3050	70	947	75	3- 8-28
Tract 88-C-2	28-B5	2992	70	...	50	5-15-28
Tract 88-C-3	28-B5	3030	70	410	70	5-15-28
Tract 88-C-5	28-B5	3044	70	...	30	5-28-28
Tract 88-C-6	28-B5	3033	70	...	10	5-28-28
Tract 88-C-7	28-B5	3051	70	...	45	5-28-28
Tract 67-1-E-1	42-B5	....	70	279	75	8- 4-28
Tract 67-1-E-2	42-B5	....	65	...	OK	8- 4-28
Tract 88-H-1	28-B5	3023	65	...	25	3- 5-28
Tract 88-I-1	30-B5	3040	65	...	34	3- 9-28
Tract 88-K-1	41-B26	2910	65	...	45	6-20-28
Tract 88-K-2	41-B26	....	65	...	50	8-10-28
Tract 88-M-3	33-B26	2775	65	196	40	6-20-28
Tract 88-M-4	33-B26	2742	65	...	10	7-27-28
Tract 88-M-14	33-B26	2878	65	459	45	7-27-28
Texon Oil & Land Co.						
A-1	41-B5	3000	65	...	35	2- 1-28
A-2	41-B5	....	65	...	40	4- 1-28
A-3	41-B5	3072	(Casing Pulled)			5- 1-28
The California Co.						
No. 1	29-B5	3045	65	634	8	3- 1-28
No. 2	29-B5	2986	70	...	85	3- 1-28
No. 3	29-B5	3378	..	660	..	1-25-28
No. 4	29-B5	3037	70	...	63	1- 6-28
No. 5	29-B5	2860	70	...	69	5-15-28
No. 6	29-B5	2960	70	...	55	4-21-28
No. 7	29-B5	2850	70	...	60	3-16-28
No. 8	29-B5	2967	65	...	20	4- 5-28

The last person in the world to be in business for unselfish reasons is the price-cutter. The very nature of his dealings indicates that what he fails to get in price he will seek to make up in poor quality. The shrewd operator is wary of price-cutting in any form but especially wary in so important and far-reaching a matter as oil well cementing.

HALLIBURTON OIL WELL CEMENTING CO.

DUNCAN, OKLAHOMA

Winkler County, Texas, Production Data

(Including Records Before and Since Proration)

COMPANY	LEASE	Section and Block	Number of Wells	Date Prod. Began	Total Prod. to 5-1-28 In Bbls.	Total Prod. to 8-1-28 in Bbls.	Company Totals	Total Per Well Prod.
Atlantic & Kesslar & Logan	Daugherty	3-74	1	7-16-28		13,893		13,893
Atlantic Oil Producing Co.	"A"	34-B5	8	11-11-27	690,378	1,084,423		135,553
do	"B"	44-B26	2	11-25-27	38,278	75,311		37,655
do	"C"	40-B5	1	5-18-28	.....	6,092		6,092
do	"D"	29-B5	8	12-14-28	470,154	944,490		118,061
do	"E"	41-B5	3	1-27-28	382,057	657,345		219,115
do	"G"	29-B5	2	6-15-28	.....	111,816		55,908
Atlantic & Collett	"F"	46-B26	9	3-4-28	498,287	1,740,075	4,633,445	193,342
California Co. (Turman & Maxwell)	Hendricks	29-B5	8	1-28-28	513,723	631,465	631,465	78,933
Cranfill & Reynolds, Inc	"A"	28-B5	2	.....	909,503	985,824		492,912
do	"B"	35-B5	1	Jan. 1928	20,762	33,644		33,644
do	"C"	33-B26	2	Mar. 1928	868,300	1,683,504		841,752
do	"D"	33-B26	1	June 1928	.....	48,836	2,751,808	48,836
Gulf Production Co.	"A"	34-BB5	12	3-25-27	1,548,624	2,243,000		187,000
do	"B"	45-B26	6	3-4-28	263,069	524,000		87,300
do	"C"	40-B5	2	5-2-28	25,238	189,000	2,956,000	94,500
Humble Oil & Refining Co	"A"	41 x 34-B5	14	11-9-27	1,602,142	2,436,507	(See note below)	174,040
do	"B"	29-B5	6	11-20-27	684,601	873,289		145,548
do	"C"	32-B26	8	4-11-28	216,732	565,284		70,660
do	"B"	47-B26	2	6-12-28	.....	70,930	3,946,010	35,465
Independent Oil & Gas Co.	"A"	34-B5	8	Nov. 1927	823,864	1,158,175		144,772
do	"B" (Howe)	44-B26	1	Dec. 1927	39,110	62,058		62,058
do	McCabe (Cowden)	36-B5	1	Mar. 1928	2,933	20,696		20,696
do	Hendricks	42-B5	1	Apr. 1927	7,226	10,276		10,276
do	Vardeman-"B"	41-B5	4	Jan. 1928	435,754	656,362	1,907,567	164,090
Magnolia Pet. Co	Hendricks	29-B5	8	12-1-27	499,361	594,209	594,209	74,275
Marland Oil Co.	Hendricks	33-B26	4	5-3-28	.....	329,401	329,401	82,350
Murchison & Cranfill Bros	"A"	35-B5	2	.....	7,231	97,788		48,894
do	"B"	35-B5	2	Dec. 1927	125,470	142,973		71,486
do	"C"	35-B5	1	.....	24,083	64,703		64,703
do	"H"	33-B26	1	June 1928	.....	70,623	376,087	70,623
Prairie Oil & Gas Co.	Hendricks	40-B26	4	5-31-28	.....	104,000	104,000	26,000
Pure Oil Co.	"A"	41-B5	7	8-6-27	484,208	914,143		130,600
do	"B"	"B"	13	2-24-28	161,065	585,514		45,040
do	"C"	45-B26	4	5-2-28	.....	431,700	1,931,357	107,925
Republic Production Co.	"A"	45-B26	3	.....	1,006,022	1,890,020		270,000
do	"B"	41-B5	4	.....	23,758			
do	"C"	42-B5	2	June 1928	.....	13,826	1,903,846	6,913
Roxana Petroleum Corp	"A"	45-B26	5	Dec. 1927	914,481	1,479,541		295,908
do	"B"	29-B5	6	Jan. 1928	466,052	660,493		110,082
do	"C"	29-B5	8	Nov. 1927	1,345,638	1,784,338		223,042
do	"D"	41-B5	6	Jan. 1928	465,077	720,012		120,002
do	"F"	40-B5	2	May 1928	.....	44,244		22,122
do	"F"	46-B26	2	June 1928	.....	206,246	4,894,874	103,123
The Texas Co., and Roxana	Cowden-A	3-B12	2	5-25-28	.....	55,611		27,805
do	Grisham-Hunter	45-B26	4	10-6-27	940,193	1,152,604		288,151
do	"A"	29-B5	7	11-29-27	700,053	968,384		138,341
do	"B"	40-B26	1	6-21-28	.....	25,540		25,540
do	"C"	40-B26	4	5-27-28	.....	95,410		23,852
do	"D"	40-B26	2	6-15-28	.....	43,461	2,341,010	21,731
Skelly Oil Co.	Hendricks	40-B26	7	6-14-28	.....	378,418	378,418	54,060
Southern Crude Oil Purchasing Co.	T-67 "A"	42-B5	2	2-10-27	112,497	159,838		79,919
do	T-67 "A-3"	4-B12	3	12-21-27	230	44,670		14,890
do	T-67 "B"	44-B26	2	1-20-28	69,961	120,147		60,074
do	T-67 "B-3"	33-B26	2	3-24-28	531,562	946,141		473,071
do	T-67 "C"	33-B5	5	4-12-27	445,470	534,806		106,961
do	T-67 "E"	42-B5	2	7-11-28	.....	6,440		3,220
do	T-67 "F"	33-B5	4	11-14-27	301,222	541,736		135,434
do	T-68 "A-3"	35-B5	2	11-26-27	428	34,870		17,435
do	T-88 "A"	44-B26	3	7-28-27	275,068	372,466		124,155
do	T-88 "B"	4-B12	2	9-5-27	1,251,507	1,403,064		701,532
do	T-88 "C"	28-B5	7	12-17-27	276,161	455,858		65,122
do	T-88 "H"	28-B5	4	3-6-28	117,020	284,316		71,079
do	T-88 "I"	30-B5	4	2-18-28	38,759	273,682		68,421
do	T-88 "J"	30-B5	1	7-23-28	.....	16,664		16,664
do	T-88 "K"	41-B26	2	4-28-28	51,369	202,387		101,193
do	T-88 "M"	33-B26	7	5-26-28	.....	400,267		57,181
do	T-88 "U"	41-B26	2	7-18-28	.....	43,953		21,977
do	T-89 "A"	35-B5	3	12-9-27	1,942	44,725	5,886,030	14,908
Texon Oil & Land Co.	"A"	41-B5	2	10-25-27	355,427	474,137		237,068
do	"B"	45-B5	4	1-10-28	346,539	618,955	1,093,092	154,739
Winkler Oil Prod. Corp.	Hendricks	33-B26	1	7-8-28	.....	7,839	7,839	7,839
Totals			290				36,666,458	

NOTE: Humble "A" lease in Sec. 34, Blk B-5 2,143,147
Humble "A" lease in Sec. 41 Blk B-5 293,360

Has Your Casing A Long Life Line?

NO LONGER is it necessary to buy casing blindly. Records are now available to determine with a fair degree of accuracy how much service you can expect from your casing, depending on the type of material used. Genuine Wrought Iron Casing, of course, lasts the longest, with an average life of *ten* to *twelve* years. The ordinary casing lasts only about *four* years.

Wrought Iron resists corrosion—that's common knowledge! By preventing corrosion, it keeps out water—it reduces the number of fishing jobs—it saves you trouble and expense.

All Reading casing, tubing and pipe, unlike all other tubular goods, are DOUBLE Welded, affording greater strength of weld, greater resistance to corrosion and vibratory strains due to denser structure, better thread accuracy and strength.

READING CASING

GENUINE WROUGHT IRON

World's Largest Manufacturers of Genuine Wrought Iron Pipe

READING IRON COMPANY HOUSTON, TULSA, FT. WORTH, SAN FRANCISCO, LOS ANGELES READING, PENNSYLVANIA

Oil Field Engineers

Make Big Savings On Maintenance Painting!

It has been conclusively proven on oil field jobs, that spray painting provides a better and more uniform film of paint with greater wearing qualities than can be done with a brush on surfaces oil field engineers have to paint. And on actual work done on big jobs the savings are remarkable.

Oil companies have also greatly speeded up the painting of large trucks with the Binks Spray Gun. These trucks are back in service in half the time formerly required when painted with the brush.

Enormous savings are made every year in Spray-painting all buildings and equipment, — property is protected from deterioration, maintenance costs are so low that more painting can be done,—working conditions are improved,—hazards are reduced.

The Binks Portable Spray Painting Unit quickly pays for itself, provides years of use, benefits and savings. Our Bulletin No. 34 will supply interesting information. Write for it today.

HOW 2 Men Covered 52,000 Square feet in 6 hours!

The above Petroleum Exposition Buildings were "Binks-Sprayed" by two men with a Binks Two-Gun Outfit. They spray painted 52,000 square feet of surface in six hours, or twelve one man hours, on corrugated sheet iron, roof and sides with red oxide primer. Work was superior to brush work. Also on the next coat, which was done with aluminum, the same men covered 90,000 square feet in 14 hours and did a much superior quality of work than could have been done with a brush!

BINKS Spray Equipment Co.
Dept. J.
3127 Carroll Ave., Chicago

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Try a GOTT Water Can and you will always be a user. Keeps water pure and cool, easy to carry and always near. Made in 1½, 3, 5 and 10 gallon sizes.

GOTT Water Coolers, 3, 5, 8, 10 and 20 gallon. Order from your supply store.

H. P. GOTT MFG. CO.
Winfield, Kansas

KEEP PURE WATER ALWAYS HANDY

(*Continued from Page* 34)

fail to indicate any generally increased rate of encroachment.

In a number of instances the back pressure put on wells by pinching them for prorating purposes, beginning May 5, resulted in the water percentages being decreased. Some of them cleared up altogether.

Although bringing about additional recovery expense, because of the necessity for separating oil and water above ground, it is believed by engineers that Winkler ultimate yields will not be lowered because of the encroachments noted.

It is recognized that, in natural water drive fields, maximum recoveries of oil from the underground reservoirs are obtained. If not 100 per cent, the experience of engineers has been that the recovery under such conditions exceeds 80 per cent.

The Winkler area had to its credit 26,666,458 barrels of recovered oil, Aug. 1 as shown in the detailed tabulation printed herewith. August production amounted to 4,982,940 barrels, bringing the total recovery to Sept. 1 to 41,649,398 barrels. These figures compare with 21,441,589 barrels recovered to May 1, 1928, five days before prorating of production was begun.

Various estimates have been made of the ultimate yield to come from the known Winkler producing area, these ranging from 155,000,000 barrels minimum to perhaps twice that quantity of crude. The writer has used a figure approximating the minimum mentioned, or about four times the recovery already made.

Continuance of restrained production under prorating practice, which will insure maximum recoveries under good water drive conditions, may make the minimum estimates of ultimate yields too low.

The presence of water under conditions existant in the Winkler area is not a drawback to the field provided nothing is done to disturb the present control of production, which prevents trappage and underground wastage that would result from unrestrained activities.

Separation of the oil and water above ground is accomplished easily by "bleeding" practice and creates in the field no extraordinary treating problems.

MARIETTA, O., Sept. 18.—A picnic with basket lunch and horseshoe pitching is being planned by the Southeastern Ohio Oil & Gas Producers Association on Sept. 29 for members, their families and friends. The picnic will be held at the fair grounds at Marietta, Ohio's oldest town.

Threatened Drilling in Mission Pool Held Off for 60 Days

By Lawrence E. Smith
N. P. N. STAFF WRITER

TULSA, Sept. 15

IN THE absence of notable extensions to pools or wildcat strikes, the better part of the week was taken up with planning to inaugurate a big drilling campaign in the Mission pool territory of Twp. 8-6 and 8-5.

Eight wells have been completed in this area and shut in or produced in nominal amounts under restrictive agreement, backed by corporation commission order, which expired Sept. 15. There was every indication at the beginning of the week that the territory would have to be drilled. Fortunately for the industry it has been delayed, however, until Nov. 15.

Marland Production Co. owns a lease on the NW quarter of the NE of 7-8-6. Contract had been made with the Roxana to drill the well. Roxana made it plain that it desired an extension of the drilling time; but Marland, whose requirements for crude oil for its refinery now exceed its production available, territorially, to its refinery, said the lease would have to be drilled. The first well on the lease would have been a diagonal offset southeast to Gypsy Oil Co.'s No. 1 Barkus, which had initial production of 4220 barrels.

There was much planning in the offices of companies owning acreage in the area. A plan was drawn up by the umpire and the advisory committee limiting drilling to one well to each 40 acres. Then, after this had tentatively been agreed to by nearly everybody, the Marland company, which had been working diligently to find crude oil for sale, found that it could get along and agreed to hold the area in check for another 60 days.

Hence, in this Mission pool area which promises to produce much oil and perhaps to be another large pool, no further drilling will be started until Nov. 15.

Several companies that have a surplus of crude in the Seminole and St. Louis areas are selling to Marland. The Empire Pipe Line Co. is starting deliveries through its line from Seminole to Ponca City, as tender shipments. The Tidal Oil Co. has been handling about 2000 barrels daily from the Seminole district to Marland lines in the Osage.

Marland's decision averted a drilling compaign of at least 40 and possibly as many as 100 wells in the Mission area. The field is due west of the Bowlegs field, and the present development is worthy of note at this time, considering the potentialities of the district. The record of each producing well shown on the map, outside the Bowlegs pool, is as follows:

Gypsy Oil Co. No. 1 Mission, SW corner of 5-8-6.
Elevation 1030 feet.
Wilcox 4327-4340 feet.
Initial production 3210 barrels.
Completed June 19, 1928

Carter Oil Co. No. 1 B. Micco, NW of 8-8-6, offset to Mission well.
Elevation 1000 feet.
Wilcox 4390-4393 feet.
Initial production 730 barrels.
Completed Aug. 21, 1928

Twin State Oil Co. No. 1 Taylor NW NE NE of 8-8-6.
Elevation 970 feet.
Wilcox 4252-4267 feet.
Initial production 1120 barrels.
Completed Aug. 21, 1928.

Gypsy Oil Co. No. 1 Doser, SE SE NE of 7-8-6.
Elevation 1011.
Wilcox 4465-4466.
Initial Production 1120 barrels.
Completed Nov. 16, 1927.

Gypsy Oil Co. No. 1 Barkus, SE SW of 6-8-6.
Elevation 987 feet.
Wilcox 4206-4210 feet.
Initial production 4220 barrels.
Completed Aug. 7, 1928.

Gypsy Oil Co. No. 1 Mosar, SE NE of 1-8-5.
Elevation 949 feet.
Wilcox 4400-4406 feet.
Initial production 960 barrels.
Completed Aug. 15, 1928.

Roxana and Papoose Oil Co. No. 1, NW SW of 7-8-6.
Elevation 949 feet.
Wilcox 4372-4381 feet.
Initial production 992 barrels in 17 hours on swab.
Completed Aug. 28, 1928.

Marland Production Co. No. 1 Mathis, NE SE SW of 7-8-6.
Elevation 997 feet.
Wilcox 4413-4423 feet.
Initial production 980 barrels.

It was encouraging to everyone when the Mission pool's opening was delayed for two months. As in all the Seminole restrictive efforts, the result was finally obtained after much discussion.

Going on west of this territory, two wells are to be started at once in Twp. 8-5. The White Eagle Oil & Refining Co. and McMan Oil Co. will drill in the NE SW SE of 9-8-5, but have agreed to shut the well in until Feb. 1. Upon the starting of a well near their well, they will open to full production. The offer of offset operators to pledge "dry hole money" to the White Eagle and McMan was refused, these companies insisting upon retaining their discovery advantage.

The other well to be started in 8-5 is that of the Amerada Petroleum Corp., in the NW SW of 8-8-5. This is a lease that will expire unless drilled. Amerada is making it a "key" well under the plan that has been followed in so many cases the past year. Pure Oil Co., Wilcox Oil & Gas Co. and Magnolia Petroleum Co. pledge themselves to pay Amerada $10,000 each if the test is dry. If it is a producer, Amerada will waive discovery advantage, shutting it in until the next producing well in the area is completed.

The St. Louis pool, which has been stimulated in activity by the new well of the Mid-Continent Petroleum Corp. in the SW SE NE of 20-7-5, three-fourths of a mile east of other Wilcox sand production in the area, continues to increase its production. The record of Wilcox stand production by wells, for the 24 hours ended Friday morning totalled 79,373 barrels. On this day the St. Louis pool, including the Simpson sand and Hunton lime production in the area, reached a new high figure, totalling 112,832 barrels. The Wilcox wells produced as follows:

Company	Well No.	Prod. Sept. 13	Prod. Sept. 7
T. B. Slick	Hembree 1	7,315	3,678
T. B. Slick	Hembree 2	5,185	4,745
T. B. Slick	Hembree 3	5,855	2,205
T. B. Slick	Hembree 4	off	7,135
T. B. Slick	Youts 1	553	.....
Independent O & G	Youts 1	10,905	10,225
Independent O & G	Youts 2	7,995	3,220
Independent O & G	Youts 3	2,725	3,115
Independent O & G	Youts 4	2,795	4,460
Independent O. & G	Youts 5	6,225	3,755
Gypsy Oil Co.	Stahl 1	5,847	5,765
Gypsy Oil Co.	Stahl 2	5,583	677
Magnolia Pet.	Hembree 1	1,019	3,529
Magnolia Pet.	Hembree 2	5,856	.....
Phillips Pet.	Stahl 2	7,020	7,575
Mid-Continent Pet.	Guinn 1	4,495	.....
		79,373	60,084

Mid-Continent developments generally were without special significance. New completions in the Little River field are more and more of the swabbing variety and water continues to show in older wells. It is apparent that the pressure has been greatly reduced in this field and compliance with the proration order will not long be difficult.

In Kansas, the Mid-Kansas Oil & Gas Co. revived interest in its McPherson county wildcat which showed for a producer late in June. At that

time water appeared. A defective string of pipe was repaired and the well deepened one foot the past week. It made 282 barrels the first 15 hours. The location is in the center of the NE SW of 31-18-2W and the well has total depth of 2985 feet. It is producing from a chat formation, such as produces in the Lost Springs pool of Marion county.

Fishing Jobs Halt Drilling Race At Santa Fe Springs

LOS ANGELES, Sept. 15

SOME 25 fishing jobs at Santa Fe Springs this week have caused oil operators to issue instructions to their drillers to proceed more cautiously and forget their desire to reach the new deep zone ahead of all others.

In fact, the race at this field is fast slowing down. Fishing jobs cost too much money—and at the best the cost of drilling a well to the new deep sand will average around $100,000. A few fishing jobs added to a few twist-offs and other troubles could easily make the cost still greater.

At the close of the week no drill had touched the top of the new deep sand, now known as the Buckbee. The Wilshire Oil Co., the company that completed the first deep zone well at Santa Fe Springs, was drilling one well that was fast approaching the Buckbee sand when a twist-off occurred. Now it is up to Shell Co. or The Texas Co. to complete the second deep sand well for the field. Each well is now coring around 5800 feet, and expects to find the top of the Buckbee sand almost any time.

A check of the field Sept. 13 indicated a total of 188 operations ranging from drilling wells to locations. Operations were divided as follows: Locations, 9; building rigs, 19; rigs, 17; rigging up, 24; new wells drilling, 107; redrilling wells, 9, and deepening holes, 3.

Associated Oil Co. has 9 operations; General Petroleum, 40; Richfield, 11; Shell Co., 9; Standard Oil, 22; The Texas Co., 22; Union, 20; Wilshire, 11, and miscellaneous, 44; total, 188. New locations are not being made as fast now as three weeks ago.

At Long Beach the action of one well indicates to many that the deep zone in that field may extend into the Los Ceritos area, where some two years ago many wells were drilled, many of which did not pay out.

The new well is located at Wardlow and American avenues, and started out making about 1500 barrels a day, but soon sanded up. It was flowing without an oil string and the owners are now cleaning out and will drill deeper. This well was drilled to 6480 feet and a string of 4¾-inch casing was cemented at 6295 feet.

Wardlow avenue has been technically called the dividing line between Signal Hill (Long Beach field proper) and Los Ceritos area. Los Ceritos extends slightly southwest from the main Long Beach field and the oil sand developed earlier only had a thickness of 100 to 200 feet. Several holes were drilled 300 to 400 feet below the producing sand, and no deeper sand was found.

Nine new producers at Long Beach this week furnished a total of 14,000 barrels of new production and will force another increase in daily average production for the field.

State Co. stopped drilling in its deep test at 8065 feet and is running in a combination string to be cemented through perforations at 5750 feet, giving it 2315 feet of oil sand, broken with ledges of shale. To date at Long Beach, wells taking in such large bodies of oil sand have failed to measure up in production to those wells taking in much less producing formation. The results at this well will be watched with interest for this reason.

Rumors were current this week that Petroleum Securities Co. officials had abandoned plans to drill a deep sand well at Englewood, although the company had addressed a letter to other companies operating at Englewood saying such a well would be drilled.

It was also rumored this week that Petroleum Securities officials had reconsidered and would probably continue to work with the other companies at Ventura Avenue in pinching in all wells to reduce the loss of natural gas as much as possible. This company has been permitting its well on the Orton lease to flow unchecked, causing Shell Co. to open its offset wells. Shell Co. opened its line wells, but pinched in other company wells to make up for the increase caused by opening the line wells.

Jim O'Donnell has taken over the Hall Petroleum Co. Ames No. 8 in the Huntington Beach townsite and will make a deep test, in search of a deeper oil bearing zone thought to underlie this area.

At Rincon, Chanslor-Canfield-Midway Oil Co.'s Hobson B-3 was completed for about 500 barrels, 47 per cent cut. The oil tests 19.1 gravity and is also making about 800,000 cubic feet of gas. It was completed at 4051 feet, and is producing from 731 feet of formation. It probably will be recemented. Richfield Oil Co. found 74 feet of oil bearing sand and shale in its Miley-Hobson test in this field, with bottom of hole at 6519 feet. Casing will be run in for a production test.

Rio Grande-Barnsdall's Elwood Co. No. 1 is drilling at about 3000 feet but information as to formations is being withheld. This well is in the new Elwood field, in Santa Barbara county, where these interests several weeks ago completed a discovery well flowing high gravity oil. Two additional locations have been made by Rio Grande-Barnsdall while two other derricks have been erected by other interests.

A small natural gasoline plant is to be erected in the Elwood field and it is now expected a pipe line may be run to tide water, so small boats might be loaded near the shore.

Seminole District Production by Companies and Leases, September 12 and September 5, 1928

LITTLE RIVER

Company	Farm	S.T.R.	Sept. 12th Wells	Sept. 12th Prod.	Sept. 5th Wells	Sept. 5th Farm
Amerada	Nitey	2- 7-6	3	1,280	3	1,345
Amerada-Wilcox	Fore	35- 8-6	2	295	2	335
Total Amerada			5	1,575	5	1,680
Barnsdall	Cotcha	23- 7-6	1	1,555	1	1,477
Barnsdall	Hotulke	22- 7-6	2	997	2	1,295
Total Barnsdall			3	2,532	3	2,772
Blackwell	Baker	11- 7-6	3	1,570	3	2,025
Blackwell	Nitey	35- 8-6	6	1,405	6	1,547
Blackwell	Talley	14- 7-6	2	730	2	875
Total Blackwell			11	3,705	11	4,447
Carter	Cotcha-M	23- 7-6	1	205	1	247
Carter	Cudjo	23- 7-6	1	160	1	200
Carter	Fish	36- 8-6	6	690	6	775
Carter	Harjo C	11- 7-6	1	7,737	1	1,600
Carter	Harjo M	13- 7-6	2	1,322	2	1,600
Carter	Jackson	11- 7-6	3	3,115	3	1,600
Carter	Larney	24- 7-6	2	3,135	1	1,175
Carter	Lena	10- 7-6	1	2,120	1	1,600
Carter	Moore	11- 7-6	1	1,295	1	1,600
Carter	Tewee	14- 7-6	4	6,570	3	2,400
Carter	Thomas	11- 7-6	1	260	1	900
Carter	Wilson	12- 7-6	1	1,502	1	1,600
Total Carter			24	28,111	22	15,297
Champlin	Tewee	14- 7-6	2	2,876	1	1,445
Continental	Cosar L	36- 8-6	7	1,715	7	1,605
Continental	Cosar M	25- 8-6	1	430	1	425
Cont. et al	Milsey	11- 7-6	1	1,620	1	885
Total Continental			9	3,765	9	4,360
Empire	Coker	13- 7-6	1	642	1	712
Gypsy	Brown	33- 8-6	1	1,300	1	2,245

(Continued on Page 43)

Seminole District Production by Companies and Leases, September 12 and September 5, 1928

(*Continued from Page 42*)

Company	Farm	S.T.R.	Sept. 12th Wells	Sept. 12th Prod.	Sept. 5th Wells	Sept. 5th Farm
Gypsy	Brown C	33- 8-6	1	197	0	0
Gypsy	Campbell	33- 7-6	2	85	2	159
Gypsy	Conard	22- 7-6	1	732	1	827
Gypsy	Cosar M	25- 8-6	1	0	2	10
Gypsy	Cosar W	36- 8-6	2	37	2	453
Gypsy	Cotcha	23- 7-6	2	1,557	2	1,077
Gypsy	Denmark	11- 7-6	3	2,987	2	3,005
Gypsy	Hulhoke	14- 7-6	7	6,045	6	3,712
Gypsy	Mungee	1- 7-6	1	25	1	25
Gypsy	Pottie	35- 8-6	4	790	4	862
Gypsy	Renton	11- 7-6	3	1,125	3	1,492
Total Gypsy			28	14,880	26	13,877
Independent	Davis-R	13- 7-6	2	1,315	2	1,400
Indep.	Tewee	14- 7-6	3	2,492	2	1,430
Indep.	Harris	23- 7-6	3	1,430	3	1,660
Indep. W. Eagle	Davis	3- 7-6	3	1,400	3	1,435
Indep.	Williams	15- 7-6	1	1,625	1	715
Total Independent			12	8,262	11	6,640
I. T. I. O.	Campbell	1- 7-6	1	221	1	226
I. T. I. O.	Dungan	35- 8-6	3	1,216	3	1,194
I. T. I. O.	House MA	1- 7-6	1	67	1	21
I. T. I. O.	House WE	1- 7-6	1	65	1	43
I. T. I. O.	House B	2- 7-6	4	1,178	4	1,200
I. T. I. O.	Hull	26- 8-6	3	1,340	3	1,468
I. T. I. O.	Jackson	1- 7-6	3	1,006	3	985
I. T. I. O.	McCulla	1- 7-6	3	619	3	657
I. T. I. O.	Nitey	1- 7-6	6	409	6	463
I. T. I. O.	Phoebe-A	36- 8-6	3	339	3	339
I. T. I. O.	Phoebe-B	36- 8-6	4	172	4	204
I. T. I. O.	Reed	1- 7-5	1	36	1	41
I. T. I. O.	Soketheche	1- 7-6	3	651	3	667
Total I. T. I. O.			36	7,320	36	7,508
Magnolia	Cruse	2- 7-6	4	1,134	4	1,284
Magnolia	Denby	11- 7-6	2	1,520	2	1,704
Magnolia	Dixon	31- 8-7	1	4	1	3
Magnolia	Harjo A	14- 7-6	2	1,625	2	1,335
Magnolia	Pottie	35- 8-6	4	584	3	675
Magnolia	Reed	22- 7-6	2	1,424	2	1,680
Total Magnolia			15	6,291	14	6,681
Mid-Cont.	Brunner	11- 7-6	3	1,415	3	1,610
Mid-Cont.	Eleck	23- 7-6	1	460	1	455
Mid-Cont.	Smith	5- 7-7	1	65	1	65
Mid-Cont.	Wadsworth	36- 8-6	7	490	7	445
Total Mid-Continent			12	2,430	12	2,575
W. B. Pine	Hoyecha	26- 8-6	4	1,962	2	1,462
Pine-Phillips	Pottie	35- 8-6	2	357	2	550
Total Pine			6	2,319	4	2,012
Prairie	Chilcoat	25- 8-6	3	335	3	1,060
Prairie	Dungan	35- 8-6	1	25	1	30
Prairie	Gibson	14- 7-6	4	2,795	3	1,965
Prairie	Harris	14- 7-6	3	3,085	2	1,760
Prairie	House	2- 7-6	4	750	4	775
Prairie	Talley	14- 7-6	2	2,000	2	2,405
Prairie-Amer.	Sunny	14- 7-6	4	8,245	4	3,200
Total Prairie			21	17,235	19	11,195
Pure	Cotcha	14- 7-6	5	4,429	5	4,072
Pure	Harjo	11- 7-6	3	2,225	2	1,675
Total Pure			8	6,654	7	5,777
Reiter-Foster	Bunyard	14- 7-6	3	4,320	3	3,065
Roxana	Caesar	11- 7-6	1	143	1	153
Roxana	Hotulke	23- 7-6	2	2,033	2	1,151
Roxana	Johnson	13- 7-6	2	2,512	2	1,828
Total Roxana			5	4,688	5	3,832
Shaffer	Narcome	36- 8-6	2	330	2	300
Sinclair	Cosar	36- 8-6	3	1,600	3	1,695
Sinclair	Haney	12- 7-6	1	115	1	98
Sinclair	Tewee	14- 7-6	1	717	1	800
Total Sinclair			5	2,432	5	2,593
Skelly	Carl	14- 7-6	1	690	1	917
Slick	Williams	15- 7-6	2	230	2	885
Snowden et al	Tiger	13- 7-6	2	1,032	2	3,210
Superior	Soketheche	1- 7-6	1	10	1	10
Texas	Coker	1- 7-6	3	815	3	860
Texas	Janey	11- 7-6	2	2,190	2	1,320
Tex-Indep.	Hotulke	23- 7-6	2	1,985	2	1,310
Total Texas			7	4,900	7	3,490
Tidal	House	1- 7-6	3	530	3	550
Tidal	Johnson	1- 7-6	1	30	1	30
Total Tidal			4	560	4	580
Twin State	Lowe	25- 8-6	1	165	1	165
TOTAL LITTLE RIVER			226	128,045	215	103,625

EARLSBORO

Amerada	Anderson	15- 9-5	2	661	2	728
Amerada	Cowden	4- 9-5	7	1,275	7	1,456
Amerada	Rogers	3- 9-5	2	10	2	264
Total Amerada			11	1,946	11	2,448
Atlantic et al	Foreman	18- 9-5	1	140	1	144
Barnsdall	Brown	10- 9-5	4	1,376	4	1,902
Barnsdall	F. Bruner	2- 9-5	3	681	3	704
Barnsdall	N. Bruner	10- 9-5	3	1,111	3	1,299
Barnsdall	Cudjo	14- 9-5	1	26	1	25
Barnsdall	D. Davis	11- 9-5	3	204	3	252
Barnsdall	J. Davis	11- 9-5	4	1,222	4	1,350
Barnsdall	M. Davis	11- 9-5	2	68	3	64
Barnsdall	Gibson	9- 9-5	8	1,937	8	2,159
Barnsdall	Hern	15- 9-5	1	1	1	2
Barnsdall	Ingram	1- 9-5	8	901	8	1,030
Barnsdall	Pack	10- 9-5	4	177	4	153
Barnsdall	Peter	10- 9-5	4	73	4	100
Barnsdall	Sango	1- 9-5	4	2,835	4	3,006
Barnsdall	Sebolka	15- 9-5	1	88	1	308
Barnsdall	H. Sullivan	11- 9-5	1	0	1	11
Barnsdall	Sull-Harjo	10- 9-5	2	38	2	38
Barnsdall	Watsutke	12- 9-5	4	1,124	4	1,109
Total Barnsdall			57	11,862	58	13,502
Burk-Greis	Wisner	6- 9-6	1	1,930	1	1,930
Carter	Davis	13- 9-5	2	260	2	200
Carter	James	6- 9-6	3	6,810	3	6,938
Carter	Sango	1- 9-5	3	40	4	45
Total Carter			8	7,110	9	7,183
Continental	Kays	2- 9-5	2	97	2	32
Continental	Spencer	12- 9-5	4	995	4	1,210
Total Continental			6	1,092	6	1,242
Empire	Barker	12- 9-5	1	85	1	128
Empire	Edmundson	3- 9-5	3	150	3	65
Total Empire			4	235	4	193
Gypsy	Bruner	10- 9-5	4	3,192	4	3,160
Gypsy	B. Carter	11- 9-5	8	3,197	9	3,680
Gypsy	Earl	16- 9-5	1	18	1	9
Gypsy	Hunick	5- 9-5	1	2,150	1	2,115
Gypsy	Noble	12- 9-5	4	1,430	4	1,477
Gypsy	Peter	10- 9-5	3	315	3	315
Gypsy	Sango	1- 9-5	11	9,292	11	10,790
Gypsy	State	16- 9-5	4	1,600	4	1,282
Total Gypsy			36	21,194	37	22,828
Independent	Bruner	10- 9-5	3	437	4	240
Independent	Sullivan	10- 9-5	1	25	2	25
Independent	Knapp	8- 9-5	3	1,664	3	1,802
Indep.-Margay	Gaines	11- 9-5	3	705	4	655
Total Independent			10	2,831	13	2,722
Magnolia	Bryant	9- 9-5	6	506	6	540
Magnolia	Cowden	4- 9-5	4	40	4	40
Magnolia	Dixon	12- 9-5	1	28	1	28
Magnolia	Edmundson	3- 9-5	3	28	3	20
Magnolia	Holmsley	11- 9-5	7	1,257	7	1,234
Magnolia	Hyde	13- 9-5	1	1,649	1	1,535
Magnolia	Ingram	10- 9-5	1	25	1	28
Magnolia	Lena	10- 9-5	3	55	3	60
Magnolia	Seay	12- 9-5	9	2,748	9	3,071
Magnolia	Simpson	10- 9-5	4	160	3	362
Magnolia	Sparks	11- 9-5	7	871	7	874
Magnolia	Sullivan	12- 9-5	3	84	3	84
Total Magnolia			49	7,451	48	7,876
Mid-Continent	McCumber	9- 9-5	7	90	7	90
Mid-Kansas	Anderson	14- 9-5	3	80	3	80
Phillips	Dunnaway	14- 9-5	1	25	1	25
Prairie	Baker	24- 9-5	1	50	1	50
Prairie	Davis	13- 9-5	5	2,990	5	3,015
Prairie	C. Graham	3- 9-5	2	5	2	15
Prairie	O. Graham	10- 9-5	4	1,310	4	1,390
Prairie	Stidham	11- 9-5	12	2,395	12	2,580
Total Prairie			24	6,750	24	7,050
Roxana	Bayliss	17- 9-5	1	0	1	25
Roxana	Hearn	13- 9-5	1	97	1	20
Roxana	Spencer	12- 9-5	2	1,441	2	1,544
Total Roxna			4	1,548	4	1,589
Shaffer	Clark	1- 9-5	3	500	3	465
Shaffer	McCoy	36-10-5	1	1,300	1	1,205
Total Shaffer			4	1,800	4	1,670
Sinclair	Foreman	18- 9-5	1	15	1	15
Sinclair	Hollins	12- 9-5	1	45	1	45
Sinclair	Sango	2- 9-5	4	3,460	4	3,500
Total Sinclair			6	3,520	6	3,560
Skelly	Mays	1- 9-5	2	2,203	1	81
Skelly	Sherry	6- 9-5	2	4,140	2	4,911
Skelly	Shepherd	6- 9-6	1	2,100	0	0
Skelly	Spencer	12- 9-5	1	406	1	438
Total Skelly			6	8,849	4	5,430
Superior	Ingram	1- 9-5	2	1,061	2	1,023
Superior	Walker	2- 9-5	2	3,143	2	3,216
Total Superior			4	4,204	4	4,239
Texas	Anderson	2- 9-5	8	610	8	550
Texas	Brown	10- 9-5	8	247	8	287
Texas	Rogers	5- 9-5	4	2,440	4	2,610
Texas	Wilmott	10- 9-5	7	585	7	620
Total Texas			27	3,882	27	3,467
Tidal	Walker	35-10-5	1	2,050	1	2,170
Tidal	Watkins	9- 9-5	7	2,755	7	2,800
Total Tidal			8	4,805	8	4,970
Twin State	Barker	12- 9-5	2	59	2	62
Twin State	Hern	2- 9-5	4	305	4	345
Total Twin State			6	364	6	397

SUMMARY

TOTAL EARLSBORO	**284**	**91,658**	**285**	**93,455**
TOTAL LITTLE RIVER	**226**	**128,045**	**215**	**103,625**
TOTAL BOWLEGS	**317**	**51,981**	**327**	**51,916**
TOTAL SEARIGHT	**69**	**13,315**	**69**	**12,861**
TOTAL SEMINOLE	**290**	**47,812**	**291**	**47,640**
GRAND TOTAL SEMINOLE AREA	**1,186**	**332,811**	**1,187**	**308,497**
Avg. Per Well			**280**	**260**

Completions in Texas, Week Ended September 15, 1928

NORTH TEXAS

Archer County

Company	Well Farm	Survey—(Sec. & Blk.)		Depth	Init. Prod.
Texas	2-Hayter	TE&L	2409	1398-1413	235
Gifford	1-Prideaux	Rohus		644-655	14
Consolidated et al.	1-Neimeyer	TE&L	2415	1427-1437	135

Wichita County

Empire Holding	5-Ancell	H&TC	11-7	1727-1730	10
Panhandle	1-Waggoner	GC&SF	1-	T.D. 1906	Dry
Lambert et al.	1-Fossett	ET	-1	T.D. 1904	Dry

Wilbrger County

Texas	10-Waggoner	H&TC	24-4	2356-2384	429
Texas	9-Waggoner	H&TC	24-4	2377-2392	308
Waggoner	7-Waggoner	H&TC	30-4	2295-2306	300
Hampton et al.	1-Waggoner	Purnell		1884-1903	198
Cosden	25-Waggoner	H&TC	31-4	2278-2307	245
Petroleum Prod.	5-Waggoner	H&TC	16-4	2438-2447	77
Ancell	1-Fee	H&TC	2-7	T.D. 1802	Dry

Young County

Shappell	3-Garrett	TE&L	1487	569-576	60
Shaw et al.	1-True	Church	98	T.D. 3309	Dry
Reed-Wooten	1-Watson		22	T.D. 601	Dry
Parker	1-Baker	TE&L	1937	T.D. 501	Dry
Jetter et al.	1-Garvey	TE&L	1857	T.D. 823	Dry
Gwynn	3-Kunkel	BBB&C	4	T.D. 1178	Dry
Franklin et al.	1-Porter	Cantrell		T.D. 632	Dry
Cunningham et al.	1-Bells	TE&L	1944	T.D. 581	Dry
Gregg-Rowe et al.	1-Dowe	TE&L	59	886-888	15
Pennell et al.	4-Johnson	Sargent		496-524	40
Mook Texas	5-Davis	TE&L	1487	511-527	25
Kleiner et al.	2-Davis	TE&L		510-522	5
Boller et al.	7-Gregg	Rohus		739-773	15

NORTH EAST TEXAS

Brown County

Kone Prod.	14-Hickman	Benson	783	1236-2149	100
Gilman et al.	18-Teston	Smith	155	1224-1247	10
Gilman et al.	5-Hickman	Benson		1244-1260	40
Anna Belle	3-Armstrong	Curlong		1180-2104	100
S. W. S.	2-Baugh	Neill		T.D. 950	Dry
Park-Shaw	1	Mitchell		T.D. 1430	Dry
Milham	3-Rosser	Cross		T.D. 1309	Dry
Cranfill-Reynolds	1-Suttles	Mitchell		T.D. 1500	Dry
Bradstreet	1-Wright	Jones		T.D. 1393	Dry

Coleman County

Eastland	5-Morris	Webber	15-722	T.D. 2200	Dry
Texas	1-Smith et al.	GH&H	13-1	1596-1601	30
Cunningham et al.	2-Jennings	Lipscomb		1150-1180	150
Anzac et al.	1-Alexander	Quigley		2270-2273	9½M

Jack County

Harrison et al.	1-Gay	SP	1	T.D. 1485	Dry
Ellis et al.	9-Fee	Williams		T.D. 535	Dry
Chandler	1-Ellis	Williams		457-475	15
Chandler et al.	2-Ellis	Williams		448-470	15

Jones County

Phillips	1-Boy	T&P	19-19	2484-2490	135
Roeser-Pendleton	1-Grayson	T&P	13-19	2532-2542	170

Limestone County

Killiam et al.	1-Ward	Whittaker		T.D. 2996	Dry

Mitchell County

Owen-Sloan	1-Brown	T&P	81-26	T.D. 1305	Dry

Parker County

Company	Well Farm	Survey—(Sec. & Blk.)		Depth	Init. Prod.
World Hats Oil	1-Bell	Warfield		T.D. 3500	Dry

Runnels County

Marland	1-Henning	ET	121	T.D. 3074	Dry

Shackleford County

Roeser-Pendleton	29-Cook	ET	60	1184-1199	50
Roeser-Pendleton	28-Cook	ET	60	1163-1185	50
Roeser-Pendleton	27-Cook	ET	60	1166-1189	150
Roeser-Pendelton	26-Cook	ET	60	1184-1203	70
Roeser-Pendelton	25-Cook	ET	60	1214-2140	150
Roeser-Pendleton	6-Cook	ET	61	1315-1350	300
Roeser-Pendelton	7-Cook	ET	61	1346-1356	150
Roeser-Pendleton	6-Cook	ET	62	1301-1315	100
Roeser-Pendleton	19-Cook	ET	60	1141-1156	50
Roeser-Pendleton	59-Cook	ET	60	1153-1168	75
Roeser-Pendleton	24-Cook	ET	60	T.D. 1325	Dry
Roeser-Pendleton	4-Cook	ET	61	T.D. 1610	Dry
Humble	3-Davis	T&P	7-14	T.D. 2055	Dry
Harris et al.	1-Mathews	ET	47	T.D. 1201	Dry

Stephens County

Hanlon	1-Wilson	TE&L	2099	3987-4045	13

PANHANDLE

Briscoe County

Smith-Baker	1-Owens	D&SE	11-GC2	T.D. 100	Dry
Alexander	1-Anderson	BS&F	23-B-3	T.D. 1620	Dry

Castro County

Mistry	1-Crum	SK&K	333-M-6	T.D. 510	Dry

Deaf Smith County

Red Hill	1-Barrett	BS&F	93-K-4	T.D. 50	Dry
K-8 Oil Co.	1-Hartman	BS&F	47-K-8	T.D. 360	Dry

Gray County

Magnolia	1-Eakins	H&GN	56-25	2735-2990	30
Bladridge et al.	1-Chapman	H&GN	10-26	2612-2705	40
Danciger	2-Morse	H&GN	2-26	2520-2551	100
Empire	2-Bender	I&GN	164-3	3260-3325	32
Phillips	2-Johns	I&GN	87-3	3118-3122	283
Empire	2-Archer	I&GN	174-3	3165-3338	15
Get Oil Co.	1-Skidmore	I&GN	164-3	3240-3300	30

Moore County

Skelly	3-Armstrong	Proctor		3172-3224	1040

WEST TEXAS

Howard County

Godley	10-Hooks	W&NW	140-29	1835-1860	125
F. H. E.	1-Roberts	W&NW	156-29	3045-3073	195

Pecos County

Mid-Kansas et al.	17-Smith et al.	GC&SF	33-194	1460-1672	190 (1 Hr.)

Winkler County

Southern Crude	T88-M19-Hendricks	PSL	33-26	2806-2810	1867
Skelly	10-Hendricks	PSL	40-26	2590-2605	450 (1 Hr.)
Roxana	4-Hendricks	PSL	46-26	2720-2721	312 (1 Hr.)
Independent	6-Hendricks	PSL	41-B-5	2810-2818	2400

New Locations in North Louisiana, Arkansas and East Texas, Week Ended September 13, 1928

Arkansas

Union county—O. W. Estes, Rowland No. 6, sw nw 14-17-14.

Louisiana

DeSoto parish—Warren and Carruthers, Ramsey 1, nw ne 33-13-16.

Franklin parish—Davis et al., Moore 1, nw nw 12-11-6e.

Caddo parish—Bayou State Oil Corp., Hoss 33, nw sw 24-22-15; Gibbins et al. Gibbins 1, sw ne 15-21-16.

DeSoto parish—Louisiana Public Utilities Co., Williams 1, ne se 22-12-12.

Ouachita parish—Magnolia Pet. Co., Millsaps 3, ne ne 26-20-4e.

Richland parish—Community O. & G. Co., Boise 1, sw nw 33-16-6e; Wilson et al., Buie 1, ne sw 17-15-7e; Community O. & G. Co., Boughton 1, ne sw 33-16-6e.

LaSalle parish—Randell et al., Urania 1, sw ne 12-10-1e.

Completions in North Louisiana and Arkansas, Week Ended September 13, 1928

Louisiana—Caddo Parish—Pine Island

Company	Well	Location	Depth	Yield
Tubbs et al.	Hines No. 1	16-14-16	2730	Dry, abnd.

Caddo Parish—Waskom

Magnolia Pet. Co.	J. M. Bryson No. 2	8-17-16	972	3M gas

Bossier Parish

Bruton et al.	Albritton & Douglass	11-22-14	2874	dry, abnd.

Webster Parish—Cotton Valley

Louisiana Oil Rfg. Corpn.	Crichton No. 2	21-21-10	4701	500,000 ft. gas

Webster Parish—Sarepta—Spring Hill

Virgil Helm	Mitchell No. 1	32-23-9	2705	2M gas

Richland Parish

Northern La. Gas Co.	McCoy B-2	17-16-6E	2436	24M gas

Union Parish

Company	Well	Location	Depth	Yield
Nat. Gas & Prod. Co.	Hale No. 1	5-21-4E	2167	4M gas

Morehouse Parish

J. S. Harkness	Bowles No. 4	18-20-5E	2197	5M gas

Arkansas—Nevada County

Humble O. & R. Co.	Groves C-4	1-14-21	1132	40 bbls.

Union County—Rainbow City

E. C. Johnson, Trustee	E. F. Gregory No. 1	10-17-14	3263	1M gas 5 bbls. oil
Lion O. & R. Co.	Sinclair No. 3	16-17-14	2840	15M gas
Marr & Hoosier	Slade No. 3	3-17-14	3232	60 bbls.
Oil Well Corp.	Slade No. 1	3-17-14	3246	100 bbls.
Sun Company	Schmidt No. 1	16-17-14	2783	15M gas
Little Fay Oil Co.	(Smackover) Primm No. 1	24-15-16	2037	25 bbls.

Drilling Operations in Oklahoma, Kansas and Texas, Week Ended September 15, 1928

	Sept. 15 Loc.	Rigs	Drg.	S.D.	Total	Week Ended Sept. 8 Loc.	Rigs	Drg.	S.D.	Total
OKLAHOMA										
Osage	3	11	20	1	35	7	7	23	..	37
Bristow-Cushing	5	7	32	5	49	4	6	32	5	37
North Oklahoma	5	7	46	27	85	5	9	48	28	90
South Oklahoma	6	12	74	22	114	6	10	74	29	119
Muskogee	..	10	40	21	71	24	7	40	23	94
Okmulgee-Bristow	11	41	58	23	133	13	35	62	21	131
Seminole Dist.	16	68	324	25	433	16	69	327	27	439
Total Oklahoma	46	156	594	124	920	75	143	606	133	957
KANSAS	76*	..	193	62	331	77*	...	191	66	334

	Sept. 15 Loc.	Rigs	Drg.	S.D.	Total	Week Ended Sept. 8 Loc.	Rigs	Drg.	S.D.	Total
TEXAS										
Central	71	32	222	137	462	52	20	252	143	465
Panhandle	14	21	81	59	175	29	15	81	59	184
N. Central	36	31	108	35	210	21	29	98	51	199
West	58	28	243	120	449	69	32	227	125	453
Total Texas	179	112	654	351	1296	171	96	658	378	1303
New Mexico	10	2	28	18	58	8	5	22	18	53
GRAND TOTAL	311	270	1469	555	2605	331	244	1477	595	2647

*Location and Rigs combined.

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DISSOLVED ACETYLENE

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Completions in Oklahoma and Kansas, Week Ended September 15, 1928

OKLAHOMA

Carter County

Company	Well No.	Location	Depth	Init. Prod.
Schermerhorn et al.	4	SW SE NW 11-2-3 W	3575-3584	110

Cotton County

Cullum et al.	3	SWc NW NE NE 3-2-10 W	2175-2195	7M

Creek County

Tibbens	1	SWc SE NE 30-15-9 E	2650-2710	2M
Wallace et al.	3	NEc 3-17-11 E	1956-1967	2M
Tibbens	5	CEL NE SW 4-18-12 E	2062-2080	1.5M
Tidal	2	NEc NW SE 20-17-7 E	2772-2797	140
Kelly et al.	1	SEc NE NW 13-14-9 E	T.D. 3680	Dry
Tibbens	1	NEc SW 29-15-9 E	T.D. 3703	Dry
Kennedy et al.	3	SWc 24-18-11 E	T.D. 1820	Dry
Lebow	9	SEc NE NW 17-17-7 E	T.D. 2858	Dry

Garvin County

Magnolia	3	SEc NE NW 14-1-3 W	1561-1566	5

Grady County

Badgett et al.	1	NEc NW 23-5-8 W	T.D. 2462	Dry
Nichlos et al.	1	CEL SE 7-5-7 W	T.D. 1900	Dry
Meridian	3	SW NW SW 25-5-8 W	2247-2450	20M
Okla. Gas Utilities	2	SW NW NW 36-5-8 W	2207-2393	20M
Twin State	3	NEc SE 14-4-8 W	2197-2300	23M

Hughes County

Catlett et al.	1	SE NE NW 18-9-9 E	3188-3196	90

Jefferson County

Beck-Lapham	2	NWc SW SE SW 34-6-5 W	1337-1360	15
Magnolia	1	NE SW SE 23-6-6 W	T.D. 2645	Dry

Kay County

Tonkawa Dev.	1	SEc 15-25-1 W	T.D. 4956	Dry
Wilson et al.	1	SEc SW SW 2-27-3 E	912-925	4
Comar	2	SWc NE 31-27-2 E	2460-2476	5
Wilson et al.	1	NEc SE 19-29-1 E	3345-3413 OWD	20
Tidal	3	C N½ SE 18-29-1E	3324-3358	135
Tidal	2	C SE SE 18-29-1 E	3298-3311 OWD	20M

Marshall County

Humble	2	NEc SW 24-5-5 E	T.D. 717	Dry
Bilbo et al.	1	NE NW NE 11-5-4 E	T.D. 340	Dry

Muskogee County

Tidal	14	C E½ SW SW 5-14-18 E	1365-1385	5
Elk Drlg.	1	SEc 34-13-17 E	T.D. 160	Dry
Garrison	1	SEc NE NE SW 20-15-17 E	T.D. 1640	Dry

Okfuskee County

Moose et al.	1	SWc NW 4-11-10 E	T.D. 622	Dry
Champlin	7	NWc NE NE 22-11-11 E	3480-3505	175

Okmulgee County

Kirkland et al.	1	C NE NW 19-15-13 E	T.D. 2779	Dry
Noble	1	NEc NW 12-15-12 E	T.D. 1296	Dry
Shaffer	1	SEc SW 1-15-12 E	T.D. 1574	Dry
Pine	2	C SW SW 17-12-13 E	1094-1130	1.2M
Papoose	12	CEL NW SW 21-15-14 E	2164-2178	75
Pine	2	SEc NE NW 10-15-14 E	905-966	10
Kirkland-Son.	3	SEc NE SW 17-15-13 E	1405-1491	10

Osage County

Indian T. I. O.	398	NW SE SE 29-23-9 E	408-415	1M
Osage Prod.	391	SWc NE NE 32-24-12 E	994-1029	40M
Lake et al.	1	SEc NW	2449-2458	10
Delmar	2	NWc 22-24-8 E	2385-2395	6
Skelton-Moore	5	NE SW SW 33-26-12 E	1035-1084	40
Jones	1	SE SW NW 25-26-8 E	1783-1827	6
Knupp	8	SW NE SW 36-27-11 E	1580-1598	15
Ross	9	SW NE NW 14-29-11 E	1024-1044	5

Pawnee County

Thompson et al.	1	CNL NE NW 23-20-9 E	T.D. 2345	Dry

Pontotoc County

Superior	1	NE NW NW 32-5-5 E	2494-2559	195
Homaokla	13	C NW NE 17-5-8 E	2520-2543	375

Pottawatomie County

Company	Well No.	Location	Depth	Init. Prod.
Kilgore et al.	1	C SE SE 12-10-3 E	T.D. 5617	Dry
Gypsy	1	SEc NE 7-8-5 E	4110-4123	2100
Independent	2	SE NE NE 19-7-4 E	3785-4024	175
Sinclair	3	NEc SW 24-7-4 E	4132-4158	1655
Independent	5	SW SE SE 19-7-5 E	4310-4338	4849
Magnolia	4	SEc NE 19-7-5 E	4060-4175	63
Gypsy	1	NW NE NE 30-7-5 E	4330-4355	6702
Phillips	2	NE NW NE 30-7-5 E	4110-4184	7457

Seminole County

Superior	1	SWc SE 3-10-6 E	T.D. 4593	Dry
I. T. I. O.	1	SE SW SW 22-6-5 E	T.D. 4637	Dry
Sinclair	2	NE SE SE 15-7-6 E	T.D. 4675	Dry
Omar et al.	1	NEc SW 31-7-5 E	T.D. 1248	Dry
Tidal	1	SEc 35-10-5 E	4328-4337	2320
Shaffer	1	SWc 36-10-5 E	4319-4332	832
Gypsy	8	NEc SE 1-9-5 E	4345-4364	1777
Slick	1	NW SE SW 6-9-6 E	4094-4103	50M
Roxana et al.	1	NWc SW 7-8-6 E	4372-4381	1006
I. T. I. O.	4	SW NW SE 26-8-6 E	4166-4183	872
Blackwell	1	SW NW SE 11-7-6 E	4045-4136	600
Mid-Continent	2	NW SE SE 11-7-6 E	4343-4353	2830
Carter	2	SW NW SW 13-7-6 E	4380-4401	1252
Empire	1	SW SE SW 13-7-6 E	4571-4573	780
Snowden-McSweeney	2	SW NW NW 13-7-6 E	4224-4237	2420
Blackwell	1	NE SW SW 14-7-6 E	4433-4441	990
Gypsy	6	SE NE SE 14-7-6 E	4360-4370	1872
Magnolia	2	NW NE NE 14-7-6 E	4127-4134	650
Independent	2	NEc 15-7-6 E	4350-4351	1705
Slick	4	SE NE SE 15-7-6 E	4247-4265	1257
Gypsy	2	NEc SW 23-7-6 E	4289-4297	125
Pure	4	NW SE NE 23-7-6 E	4560-4566	130
Cal Cul	1	SW NW SW 24-5-7 E	2650-2659	40M
Gypsy	9	NW NE NW 18-5-8 E	2683-2750	300
Champlin	1	SEc NE 14-7-6 E	4338-4354	1562
Reiter-Foster	1	SE NW SW 14-7-6 E	4256-4263	2230
Sinclair	1	NW SW NE 14-7-6 E	4125-4137 OWD	800

Stephens County

Cruce	1	SEc SW NW NE 12-1-6 W	T.D. 200	Dry
Medlin et al.	1	NEc SW SE 34-1-8 W	1664-1670	15

Wagoner County

Ford	2	NEc SE NW 36-16-17 E	847-857 OWD	3M
Minshall et al.	1	SWc NE 6-19-15 E	1101-1111	1.5M

KANSAS

Butler County

Garden et al.	3	NEc SW NE 6-27-6 E	2708-2735	500
Empire	1	SE NW NE 22-27-5 E	2751-2770	30
Tidal-Mathews	1	CSL SW SW 31-26-6 E	T.D. 2777	Dry

Chautauqua County

Craver et al.	1	SWc 29-32-10 E	T.D. 1593	Dry

Dickinson County

Watchorn	1	NWc SE 33-16-4 E	T.D. 2630	Dry

Elk County

Odell	1	NW SW SW 10-31-10 E	1974-2006	50
Davis et al.	1	NE SW SE 9-31-10 E	T.D. 2090	Dry

Greenwood County

McGinnis et al.	1	NEc SW 10-25-12 E	T.D. 1983	Dry

Marion County

Phillips	2	NWc SW 13-17-4 E	T.D. 2421	Dry

Rooks County

Krueger et al.	1	SEc SW 11-9-16 W	3228-3322	175
Fendeiss et al.	1	NW SE SE 23-10-19 W	T.D. 3503	Dry

Sumner County

Morgan et al.	1	SWc 16-35-2 E	3316-3336	6M

New Field Operations in Oklahoma, Kansas, Panhandle, North, North Central and West Texas, Week Ended September 15, 1928

OKLAHOMA

Caddo County

Company	Well No. Farm	Location
Caddo	2-McKenna	SWc NW SW 4-5-9 W

Cotton County

Cullum-Perkins	4-Priddy	NEc SE SE NE 3-2-10 W

Creek County

Atlantic	2-Scott	SWc NE NW 23-14-10 E
Irelan et al.	1	C NW SE 11-17-10 E
Magnolia	3-Emarthla	NW NE SW 5-16-8 E OWD
Shaffer	18-Tiger	NWc SE NW 17-17-7 E
Lebow	16-Tiger	SWc NE NW 17-17-7 E

Grady County

Nichols	1-Williams	NEc SW 26-4-8 W
Okla. Gas Utilities	13-Farwell	SE NW SW 26-5-8 W

Kay County

Burnham et al.	1	SWc NE NE 7-27-2 E

Lincoln County

Kingwood	1-Jennings	SWc 10-12-6 E

Marshall County

Smith	5-Hull	NEc SE SE NW 24-5-5 E

McIntosh County

Weible	2-Bruner	CNL S½ SE SW 25-11-16 E

Muskogee County

Company	Well No. Farm	Location
Allred et al.	1-Monday	NWc SE SW 4-13-16 E
Grubbs-Young	2-Friday	SWc NW 6-15-15 E
Metzger	3-Francis	NEc SW SW 1-14-18 E

Okfuskee County

Tidal	1-King	NW SW SW 14-10-8 E OWD
Atlantic	3-Simmer	NEc SE NE SE 11-10-11 E
Champlin	12-Jacobs	NWc SE SE 15-11-11 E
Champlin	11-Jacobs	SWc SE SE 15-11-11 E
Pure	1-Jimboy	C NW NW 25-11-10 E

Okmulgee County

Swindler	7-Scott	C SE SE 36-15-14 E
Jolly	1-Serrell	SEc SW 33-15-14 E
Noble	1-Marshall	NW SE SW 8-15-12 E
Flanigan	1-Brown	SEc 25-16-11 E

Osage County

Stoner Bros.	3	C S½ N½ NW 31-24-9 E
I. T. I. O.	399	SW NW SW 28-23-9 E
I. T. I. O.	400	NEc SW SW NW 5-24-9 E
I. T. I. O.	337	NEc SE SE SE 35-25-11 E
I. T. I. O.	401	NW SE SE 22-27-11 E

Pontotoc County

Texas-Pacific	3-Hutcheon	SEc 19-5-8 E
Roxana	1-Smith	NWc SW 20-4-4 E
Henry-Hunter	1-Smith	SWc NW 31-4-7 E

(Continued on Page 47)

New Field Operations in Oklahoma, Kansas, Panhandle, North, North Central and West Texas, Week Ended September 15, 1928

(*Continued from Page 46*)

Pottawatomie County

Company	Well No. Farm	Location
Gypsy	2-Hunick	CWL SW SE 5-9-5 E
Independent et al	1-Alfrey	SWc NE 7-9-5 E
Mid-Continent	1-Roger	SEc SW 5-9-5 E
Magnolia	3-Singletary	SW SE SW 14-7-4 E
Panther	3-Townsite	SE SW SW 14-7-4 E
McCullough	3-Smith	SW NW SE 25-7-4 E
McCullough	6-Bruno	NW SE NE 25-7-4 E
McCullough	4-Smith	NW SW SE 25-7-4 E
Phillips	3-Cherry	SW NE NE 25-7-6 E
Pure	2-Thomas	CNL NE NE 26-7-4 E
Sinclair	3-Nadash	NW SW NW 29-7-5 E
Gypsy	4-Stahl	SW NE NE 30-7-5 E
Gypsy	5-Stahl	SE NE NE 30-7-5 E
Gypsy	6-Stahl	NW SE NE 30-7-5 E
Gypsy	7-Stahl	NE SE NE 30-7-5 E
Shaffer	1-Tolon	NE SE SW 30-7-5 E

Seminole County

Slick	1-James	NW SE SW 6-9-6 E
Slick	2-James	NE SE SW 6-9-6 E
Magnolia	7-Rhodes	SE NW SE 12-8-6 E
Magnolia	1-Reed	SEc 31-8-7 E OWD
Empire	1-Harjo	SE NW SE 17-7-6 E
Carter	3-Larney	NE NW NW 24-7-6 E
Sinclair	2-Culley	NWc 13-5-7 E
Gypsy	1-Warledo	SE NW NE 21-10-7 E
Sinclair	2-Peter	NE NW NW 18-5-8 E

Stephens County

Winkler-McQueen	1-Heiser	NEc NW SW 31-1-8 W
Elliott et al	1-Indian	NWc SE 11-1-9 W
Petroleum Prod	1-Lennard	SWc NE NE 6-1-8 W
Fort Ring et al	4-Taliferro	CNL SE SE 28-1-8 W
Humble	1-Rucktashel	SE NE NE 11-1-4 W
Westheimer et al	1-Martin	SEc 11-1-4 W
Magnolia	1-Green	SWc NE 13-1-4 W OWD

Tulsa County

Cornelius et al	1-Company	SEc NE SW 32-19-12 E

Wagoner County

Minshall et al	1-Naver	NEc SW 6-19-15 E
Elk Drlg	4-Childers	CWL SW NW 22-18-17 E

KANSAS

Butler County

Dixie	4-Marshall	NE SW NW 10-27-6 E
Garden et al	5-Sluss	CWL SW NE 6-27-6 E
Maxwell	3-Maxwell	NWc SE 31-24-4 E

Elk County

Ingling	1-Cook	SW NW NW 10-31-10 E
Tory-Murfin	1-Harris	NE SW SW 10-31-10 E

Greenwood County

McGinnis et al	1-Robbins	NEc NW 16-24-9 E
Syndicate-Phillips	1-Edwards	NWc NE 35-23-11 E
Empire	11-Ott	SE NW NW 25-22-12 E

Marion County

Madison-Hoffman	1-Kasha	NWc NE 9-17-4 E

Woodson County

Underwood et al	1-Simpson	SEc SW 35-23-14 E
Young et al	1-Opperman	SWc NE 27-23-14 E

TEXAS

NORTH TEXAS

Archer County

Company	Well No. Farm	Location	Survey
Madden-Hunt	2-Richardson	Sec-1	Anderson
The Texas	17-Richardson	Blk-6	Anderson
The Texas	3-Hayter	Sec-2409	TE&L
The Texas	4-Hayter	Sec-2409	TE&L
Young et al	1-Langford	Sec-128	Harris
The Texas et al	1-Wilson	Blk-3	Taylor
Stumpf-Hines	4-Wallace	League-3, Blk-11	Denton Co. Sch. Ld.
American et al	15-Tuberville	Blk-146	Carson
Melville et al	1-Hutton	.....	Poitevant

Foard County

Navarro	1-Johnson	Sec-37, Blk-1	SP

Wichita County

Stumpf-Hines	1-Lockridge	.....	Neathery
Hammon et al	2-Burnside	.....	Sharp
Murchison et al	2-Waggoner	Blk-33	George
Bass-Dillard	1-Ancell	Sec-13, Blk-7	H&TC
Empire Holding	6-Ancell	Sec-11, Blk-7	H&TC

Wilbarger County

Staley-Wynn et al	1-Waggoner	Sec-25, Blk-6	H&TC
Fain-McGaha	14-Waggoner	Sec-24, Blk-4	H&TC
Staley-Wynn	2-Waggoner	Sec-32, Blk-4	H&TC
The Texas	1-Waggoner	Sec-12, Blk-4	H&TC
Golding et al	2-Waggoner	Sec-24, Blk-4	H&TC
Hampton et al	2-Waggoner	.....	Purnell
Derby	2-Waggoner	.....	Purnell
O'Neil	1-Waggoner	Sec-18, Blk-4	H&TC
Cosden	27-Waggoner	Sec-31, Blk-4	H&TC
Cosden	26-Waggoner	Sec-31, Blk-4	H&TC
Baker et al	4-Waggoner	.....	Purnell
Baker et al	1-Waggoner	.....	Purnell
Waggoner Farm	5-Waggoner	Sec-5, Blk-5	H&TC
Simms	5-Waggoner	Sec-5, Blk-5	H&TC
Consolidated	12-Waggoner	Sec-5, Blk-5	H&TC
Bass-Dillard	5-Waggoner	Sec-5, Blk-5	H&TC
Barkley-Meadows	5-Waggoner	Sec-5, Blk-5	H&TC
Waggoner Farm	1-Waggoner	Sec-5, Blk-5	H&TC
Consolidated	2-Waggoner	Sec-5, Blk-5	H&TC

Young County

Ford et al	1-Johnson	.....	Sargent
Stafford	3-Boone	Sec-1	BBB&C
Tidal	2-Garrett	Sec-1487	TE&L
Mook Texas	6-Davis	Sec-1487	TE&L

NORTH EAST TEXAS

Brown County

Lloyd	4-Collier	Blk-139	Smith
Uhl	1-Churchill	Blk-141	Curbier
Spence	1-Conway	Blk-292	Bassett
Cranfill-Reynolds	12-Eubanks	Blk-141	Mitchell
Cronn Pet	1-Johsnon	Blk-53	Thomas
Cronn	1-McCulley	Blk-53	Thomas
Baker-Hodges	1-Eubanks	Blk-141	Mitchell
Anna Belle	4-Armstrong	Blk-151	Curlong
Anna Belle	12-Hickman	Blk-783	Benson
Kerr-Chambers	1-Boyson	Blk-604	Mangle
Kone Prod	15-Hickman	Blk-783	Benson
Cranfill-Reynolds	2-Graham	Sec-7, Blk-137	Brown
Gilmer et al	5-Hickman	Blk-783	Benson
Lloyd	5-Collier	Blk-139	Smith

Callahan County

Swoveland et al	1-Sealey et al.	Sec-113	GH&H
Mortimer et al	2-Jones	Sec-40	D&DA

Coleman County

Cunningham et al	5-Jennings	Blk-94	Lipscomb
McGahey et al	1-Ford	Sec-44, Blk-96	Humphrey
Charter	4-Crump	Sec-13, Blk-665	Scott
Derby	8-Henning	Blk-94	Lipscomb
Texas Prod	1-Gates	Blk-742	Frazier

Eastland County

Root	1-Hart	Sec-62, Blk-4	OWD	H&TC
Gordon	1-Henson	Blk-1		Finley

Jack County

Buttram	2-Culler	.....		Chairs
Seaboard	5-Culler	Sec-4		Cullers
Bryson et al	1-Clendenen	.....	OWD	Hardesty
Hays et al	1-Kinder	Sec-2668	OWD	TE&L

Shackleford County

Hughes et al	1-Bradford	Sec-3	BAL
Roeser-Pendleton	34-Cook	Sec-60	ET
Roeser-Pendleton	7-Cook	Sec-62	ET
Roeser-Pendleton	32-Cook	Sec-60	ET
Roeser-Pendleton	33-Cook	Sec-60	ET
Welch et al	1-Harvey	Sec-5, Blk-14	T&P
Callahan et al	5-Nail	Sec-150	ET

Stephens County

Breeding et al	1-Russell	Sec-63, Blk-6	T&P
Beatty	1-Williams	Sec-445	SP

PANHANDLE

Gray County

Wilcox	30-Worley et al.	Sec-61, Blk-3	I&GN
Shanrock	1-Clayton	Sec-50, Blk-25	H&GN
Republic Prod	1-Saunders	Sec-4, Blk-1	ACH&B
Ezell et al	1-Bell	Sec-183, Blk-B-2	H&GN
Mid-West	2-Holms	Sec-86, Blk-3	I&GN
Gulf Prod	1-McLarty	Sec-2, Blk-1	ACH&B
White Eagle	1-Shaw	Sec-5, Blk-1	ACH&B
Magnolia	2-Archer	Sec-174, Blk-3	I&GN

Wheeler County

White et al	1-Skelton	Sec-100, Blk-17	H&GN
Angus et al	2-Morgan	Sec-93, Blk-17	H&GN
Lone Star	1-Trostle	Sec-90, Blk-17	H&GN
Consolidated	1-Ackley	Sec-20, Blk-24	H&GN
Upham	1-Lamb	Sec-91, Blk-17	H&GN

WEST TEXAS

Crockett County

Barber	1-Cox	Sec-1	Dickerson

Edwards County

McMann	1-Scheimer	Sec-50, Blk-F	HE&WT
Magnolia	2-Whitehead	Sec-8, Blk-D	GC&SF

Howard County

Schermerhorn	3-Roberts	Sec-157, Blk-29	W&NW
F. E. H.	4-Roberts	Sec-136, Blk-29	W&NW
Hyer-Yates	1-Clay	Sec-155, Blk-29	W&NW
Hyer-Dunnigan	2-Clay	Sec-126, Blk-29	W&NW

Irion County

Evans	1-Thompson	Sec-5, Blk-10	SP

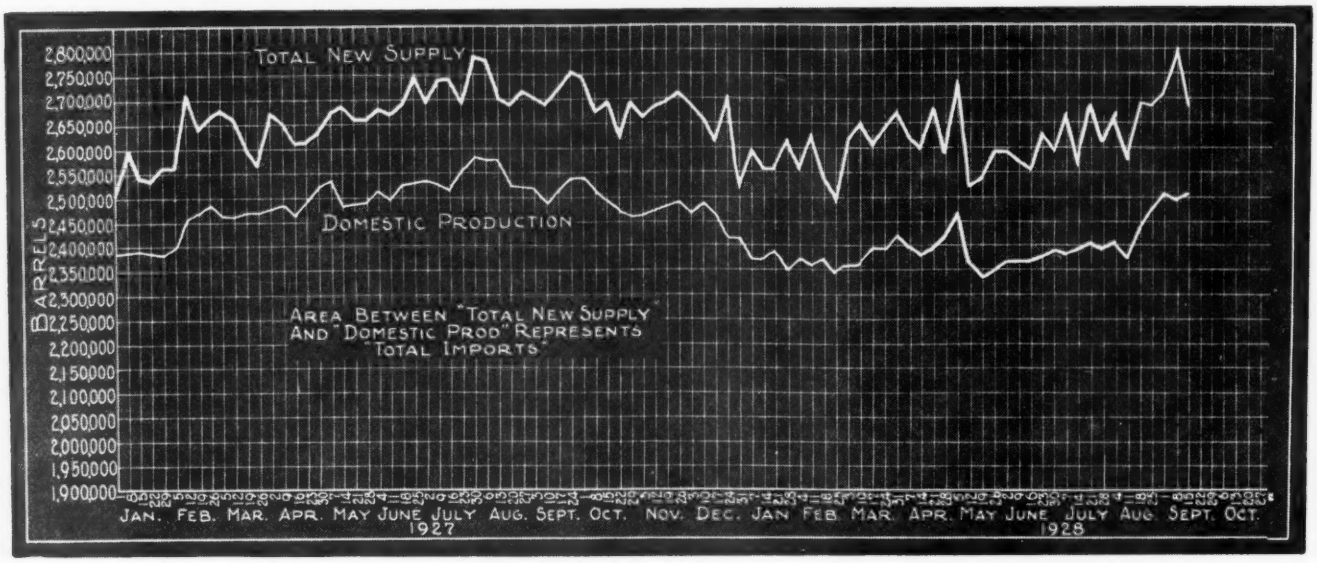
Pecos County

Roxana	2-Smith	Sec-24, Blk-194	GC&SF
McMann	1-Tippett	Sec-107, Blk-194	GC&SF
Gulf Prod	12-Smith	Sec-28, Blk-194	GC&SF

Winkler County

Southern Crude	T-88-N1-Hendricks	Sec-28, Blk-26	PSL
Roxana	6-Hendricks	Sec-46, Blk-26	PSL
Roxana	7-Hendrieks	Sec-46, Blk-26	PSL
Southern Crude	T-88-J3-Hendricks	Sec-30, Blk-B-5	PSL
Atlantic	6-Hendricks	Sec-46, Blk-26	PSL
Eastland	1-Hendricks	Sec-46, Blk-26	PSL
Eastland	2-Hendricks	Sec-26, Blk-26	PSL
Humble	16-Hendricks	Sec-34, Blk-B-5	PSL

Daily Average Crude Oil Production and Imports



Daily average gross output of United States, by fields, for week ending with dates below as compiled by American Petroleum Institute

PRODUCTION SUMMARY

	Sept. 15	Sept. 8
Production east of Rockies	1,869,300	1,858,400
Increase		10,900
Total production in U. S.	2,504,900	2,494,200
Increase		10,700
Crude oil imports	187,143	309,286
Decrease		122,143
Total crude supply	2,692,043	2,803,486
Decrease		111,443

OKLAHOMA

	Sept. 15	Sept. 8
North Braman	2,900	3,000
South Braman	1,500	1,550
Blackwell	3,600	3,400
Hubbard	2,800	2,800
Thomas	1,200	1,300
Tonkawa	12,300	12,700
Garber	8,200	8,200
Burbank	27,800	28,050
Osage, outside Burbank	27,000	27,050
Cushing	19,850	19,850
Yale Jennings	7,400	7,400
Davenport	1,850	1,850
Bristow-Slick	20,800	20,800
North Okmulgee	14,600	14,650
Pearson	3,050	3,300
Lyons-Deaner	5,700	5,750
St. Louis	103,300	91,300
Allen Dome	21,000	20,150
Cromwell	9,150	9,150
Papoose	4,150	4,150
Wewoka	5,750	5,750
Seminole	47,300	48,100
Bowlegs	50,900	52,300
Searight	12,950	12,850
Little River	115,700	101,750
Earlsboro	91,150	93,700
Duncan district	7,650	7,800
Graham	5,250	5,300
Fox	1,650	1,650
Healdton	13,800	14,000
Hewitt	9,500	9,400
Scholem Alechem	15,500	15,000
Others	51,300	52,050
Total, Oklahoma	726,550	706,050
Increase		20,500

KANSAS

Greenwood County	26,500	26,750
Florence-Covert	1,000	1,000
Peabody-Elbing	3,150	3,150
Eldorado-Towanda	12,700	12,700
Augusta-Fox-Bush	3,300	3,300
Rainbow Bend	1,600	1,600
Russell	4,000	3,900
Churchill	9,300	9,050
Oxford	9,550	9,900
Others	29,000	29,100
Total, Kansas	100,100	100,450
Decrease		350

NORTH LOUISIANA

Homer	4,250	4,300
Haynesville	5,800	5,800
Caddo, light	9,250	9,200
Caddo, heavy	3,150	3,100
De Soto, Red River	3,900	4,000
Elm Grove	550	550
Bellevue	750	800
Cotton Valley	4,300	4,350
Urania	6,600	6,500
Pleasant Hill	550	550
Total, North Louisiana	39,100	39,150
Decrease		50

ARKANSAS

El Dorado	5,200	5,200
Champagnolle	12,050	11,150
Smackover, light	7,400	7,400
Smackover, heavy	56,000	56,350
Stephens	1,050	1,000
Nevada	1,200	1,200
Lisbon	1,900	1,950
Others	100	100
Total, Arkansas	84,900	84,350
Increase		550

TEXAS (Outside Gulf Coast)

Panhandle District

	Sept. 15	Sept. 8
Hutchinson County	32,600	34,500
Carson County	6,650	6,500
Gray County	21,650	22,550
Wheeler County	800	750
Others	1,100	1,100
Total, Panhandle District	62,800	65,400
Decrease		2,600

North Texas

Burkburnett	9,800	9,900
Electra	13,150	13,050
Iowa Park and K-M-A	3,850	3,950
Wilbarger	31,400	33,000
Archer County	19,950	19,850
Montague-Cooke	10,800	10,900
Others	600	600
Total, North Texas	89,550	91,250
Decrease		1,700

West Central Texas

Stephens County	7,150	7,050
Eastland-Desdemona	6,650	6,600
Brown County	11,800	12,050
Coleman County	3,700	3,500
Callahan County	3,550	3,600
Shackleford County	11,100	10,850
Young County	7,900	8,000
Throckmorton County	950	950
Palo Pinto County	400	450
Jack County	1,650	1,650
Others	650	650
Total, West Central Texas	55,500	55,350
Increase		150

West Texas

Jones County	4,300	3,200
Mitchell & Scurry Counties	2,800	2,650
Howard County	19,300	15,400
Reagan County	18,500	17,000
Crane and Upton Counties	59,400	58,600
Crockett County	2,600	2,850
Pecos County	72,700	74,150
Winkler County	166,300	174,500
Others	1,400	1,450
Total, West Texas	347,300	349,800
Decrease		2,500

East Central Texas

	Sept. 15	Sept. 8
Mexia	6,500	6,600
Currie	450	450
Richland	500	550
Wortham	1,500	1,600
Jacksonville	.....	4,100
Corsicana-Powell	9,900	9,950
Others	1,500	.....
Nigger Creek	950	950
Total, East Central Texas	21,400	24,200
Decrease		2,800

Southwest Texas

Luling	13,650	13,600
Lytton Springs	1,000	1,000
Somerset	700	700
Laredo District	8,500	8,550
Dale	1,300	1,250
Others	400	400
Total, Southwest Texas	25,550	25,500
Increase		50
Total, Texas (Outside Gulf Coast)	602,100	611,500
Decrease		9,400

GULF COAST

Coastal Texas

West Columbia	7,600	7,450
Damon Mound	650	650
Big Creek	2,700	3,000
Boling	1,800	1,800
Blue Ridge	7,450	9,300
Pierce Junction	9,300	10,400
Humble	1,350	1,350
Goose Creek	6,800	6,650
South Liberty	3,550	3,400
Hull	10,400	10,550
Saratoga	1,050	1,000
Batson	1,400	1,400
Barber's Hill	600	600
Sour Lake	3,250	3,250
Spindletop	38,800	37,400
Orange County	3,500	3,500
Others	5,000	5,400
Total, Coastal Texas	105,200	107,100
Decrease		1,900

Coastal Louisiana

Vinton	4,300	4,300
Sulfur Dome	2,500	2,600
Lockport	3,400	3,700
Sweet Lake	4,100	3,900
Evangeline	1,000	1,050
East Hackberry	2,800	3,050
Edgerly	1,050	1,000
Sorrento Dome	1,000	1,000
Others	1,350	1,350
Total, Coastal Louisiana	21,500	21,950
Decrease		450
Total, Gulf Coast	126,700	129,050
Decrease		2,350

ROCKY MOUNTAIN

Wyoming

Salt Creek	37,250	34,850
Grass Creek	2,350	2,450
Elk Basin	1,100	950
Bug Muddy	2,600	2,600
Lost Soldier	4,100	4,100
Rock Creek	2,650	2,650
Lance Creek	550	550
Oregon Basin	4,350	.....
Others	3,100	7,600
Total, Wyoming	58,050	55,750
Increase		2,300

Montana

Cat Creek	1,600	1,600
Sunburst	7,800	8,000
Others	150	150
Total, Montana	9,550	9,750
Decrease		200

Colorado

Moffat (Craig)	1,500	1,200
Fort Collins	2,250	2,450
Florence	1,100	1,000
Others	2,500	2,400
Total, Colorado	7,350	7,050
Increase		300

New Mexico

Table Mesa	250	100
Hogback	500	500
Artesia	1,050	1,000
Rattlesnake	500	500
Others	100	200
Total, New Mexico	2,400	2,300
Increase		100
Total, Rocky Mountain	77,350	74,850
Increase		2,500

CALIFORNIA

	Sept. 15	Sept. 8
Santa Fe Springs	39,000	38,000
Long Beach	200,000	197,500
Huntington Beach	52,000	53,500
Torrance	17,000	17,500
Dominguez	11,000	11,000
Rosecrans	5,500	5,500
Inglewood	29,400	29,000
Midway-Sunset	74,000	74,000
Ventura Avenue	52,000	52,000
Seal Beach	28,000	28,000
Others	127,700	129,800
Total, California	635,600	635,800
Decrease		200

Types of Portable Pulling and Cleaning Equipment for Oil Leases

By Lester C. Uren
Professor Petroleum Engineering, University of California

THE two previous articles of this series were descriptive of equipment used in the multiple pumping of oil wells, a system of pumping in which all wells of a group are operated from a central power plant by a series of "pull lines" or "shackle lines."

When this system of power transmission is used, there are no prime movers at the individual wells and, when cleaning or repair operations are necessary, as in pulling rods and tubing, recourse must be had to the use of auxiliary power equipment that can be brought to the wells and set up for temporary service.

For this purpose, a variety of different styles of portable winches and "pulling machines" are in use, which it is the purpose of the present article to describe. Particular attention will be directed to the more recent types of equipment developed for this purpose.

In addition to their use on wells operated from central powers, portable winches and pulling machines find frequent application in conditioning wells and repairing well equipment in fields where the wells are operated by single-speed electric motors, or by certain types of power "units" which do not afford sufficient power or flexibility in speed and torque, to take care of the occasionally necessary repair operations.

As pointed out in earlier articles dealing with pumping practice, important economies may be realized in using power plants at the individual wells proportioned to their needs in routine pumping operations, avoiding the use of high-power units capable of furnishing sufficient power for repairing and cleaning operations, but necessarily inefficiently operated when delivering only a fractional part of their rated capacity, as will be the case in routine pumping operations.

Adoption of a one-purpose, stationary power plant at the well necessarily requires the provision of auxiliary power equipment which can be brought to the well and quickly adapted to meet the abnormal power requirements. In this service, portable pulling equipment finds a useful and profitable field of application.

When multiple pumping is practiced and portable pulling equipment may be effectively used, pumping costs are not only reduced through more efficient power application, but important economies in operating expense result through reduction of maintenance and depreciation charges on many scattered rigs. Instead of burdening production costs with the expense of up-keep on a separate rig at each operating well, production need be charged only with the depreciation and maintenance on a single rig serving all in turn, as required.

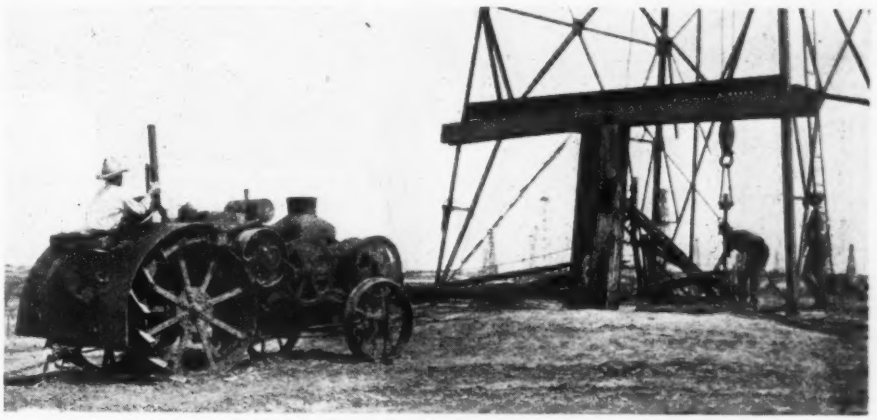


Fig. 1.—Advance-Rumely "Oil-Pull" winch occupied in pulling tubing. (Courtesy of Fred E. Cooper, Tulsa, Okla.)

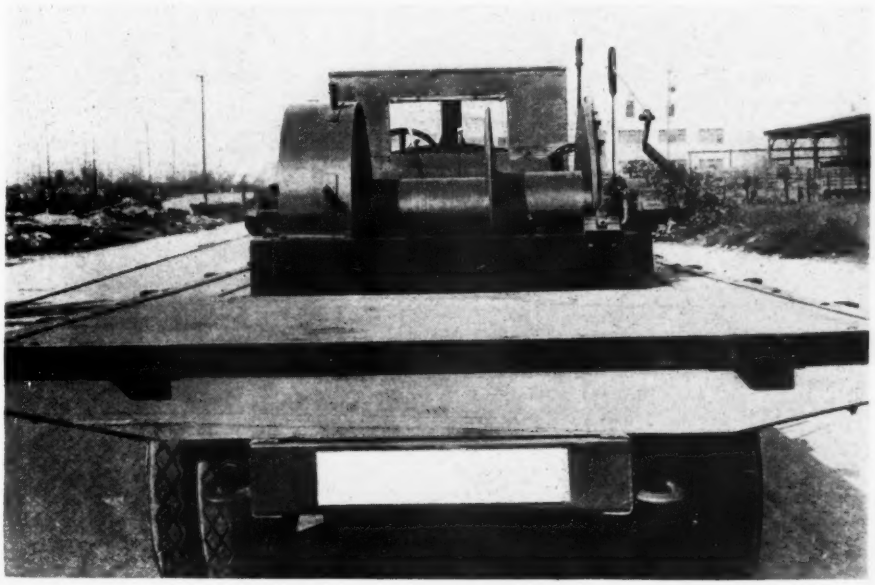


Fig. 2.—The Hopper winch, type "B," mounted on Mack truck. (Courtesy Hopper Machine Works, Bakersfield, Calif.)

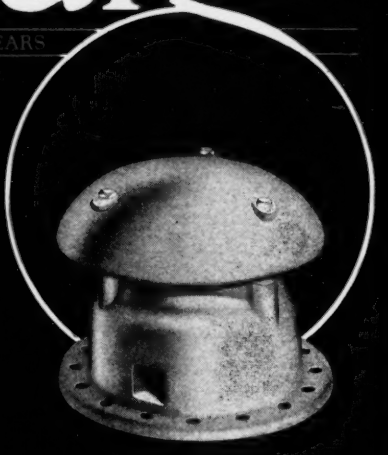
Due to the fact that the portable rig is in frequent service, it is more likely to be efficiently maintained, and therefore permits of more rapid and effective repair work at the wells than is possible from poorly maintained stationary equipment. Were it not for lower production costs made possible by such methods, many of the older oil fields of the United States would long since have become commercially unprofitable.

Types of Well-Pulling Equipment

We may classify portable well-pulling and cleaning equipment according to the type of motive power employed, or according to the nature of the equipment provided. Still another classification might be based on the means of locomotion used in

Parkersburg

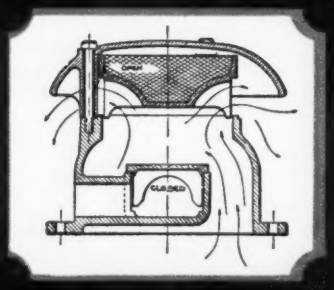
HAS SERVED THE OIL FIELDS OF THE WORLD FOR THIRTY-ONE YEARS



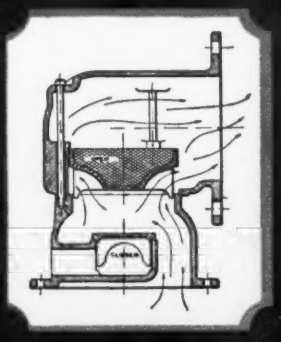
Vapor Tight Equipment

AMONG the important items of Parkersburg Vapor Tight Equipment is the *Pressure-Vacuum Gauge*. This gauge has never failed under the most severe tests and temperature conditions. It is designed to release large volumes of vapors. It can be supplied with a pipe outlet.

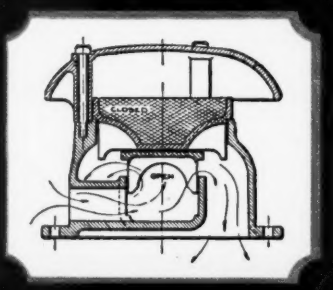
For complete information on Parkersburg *Pressure-Vacuum Gauges* and other items of Parkersburg Vapor Tight Equipment, send for Section "S," Catalog 26.



1—Action Releasing Vapors.



3—Pressure-Vacuum Gauge with the Pipe Outlet.



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This type gauge is for use where it is desired to carry the vapors away from the tank, either for safety or for use as fuel.

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moving the equipment about. Gas or gasoline engines are generally used for motive power, both for operating the equipment and for traction in moving it about, though electric power is sometimes used for operations at the well.

Some pulling machines are merely winches, while in other cases a walking beam or spudding device, and perhaps also a bailing drum and "calf wheel" are provided to assist in "cleaning out" operations. Often the machine is mounted on a tractor or motor truck which serves both as a source of power in operations at the wells, and for locomotion in moving the equipment from well to well.

Electrically-driven pulling machines may be mounted on wagons or trailers intended to be hitched behind a motor truck or tractor, or drawn by animal power. Some pulling equipment is semi-portable, mounted on skids, the machine and its supports being moved about as a unit on any convenient type of conveyance, which is not a permanent part of the machine and which has no part in the operation of the machine while at the well.

Originally, portable pulling equipment was designed for use only in comparatively shallow wells, and was often operated by man or animal power; but recent development has trended toward more powerful equipment capable of pulling heavy strings of tubing and rods from wells several thousand feet deep. Flexibility in speed and pulling torque is an important advantage in pulling operations, and the more popular types of winches and pulling machines are designed to operate at several different speeds and are provided also with a convenient means of quickly reversing the motion of the winding drum.

If the derricks are dismantled after the wells are completed, or if the wells are drilled by portable rigs, some form of mast or tripod must be erected at the well when pulling operations are necessary. Some pulling machines carry their own masts with them as a part of the regular equipment, so mounted that they may be quickly hoisted into working position with the aid of the power. In other cases, a mast or tripod is left permanently at each well.

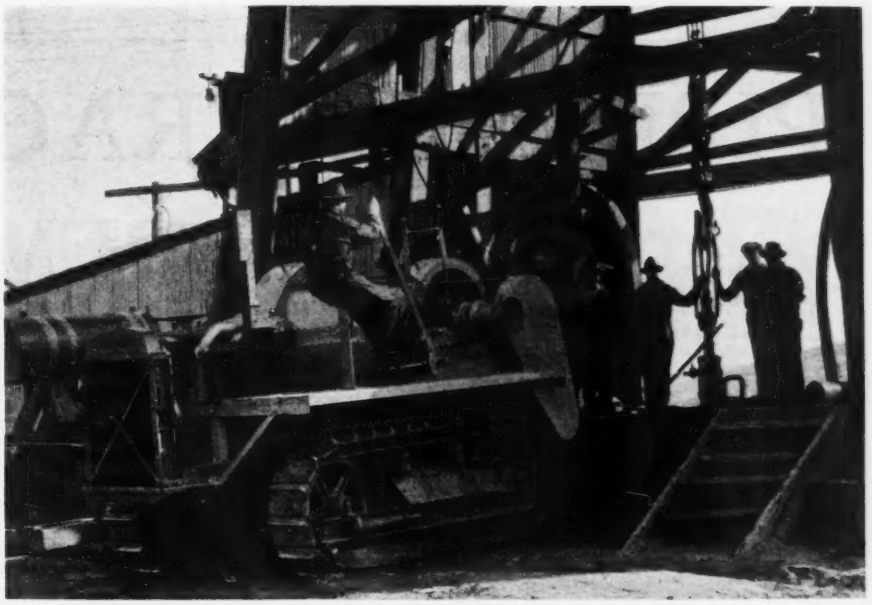


Fig. 3.—The Hopper winch, type "D," mounted on a "Caterpillar-60" tractor. (Courtesy Hopper Machine Works, Bakersfield, Calif.)

The trend of the oil-producing industry of late has been so definitely toward the use of portable pulling equipment, that many manufacturers have entered the field and are offering a variety of different types and styles of machines. A number of these are well designed and adapted to the requirements of oil-well service.

The Advance-Rumely oil-pull winch, Fig. 1, has several novel features that have made it popular with many oil producers. Unlike most of the machines now being exploited for this purpose, the power unit employed is an integral part of the winch mechanism. A large, heavy-duty, slow-speed gasoline engine, with two horizontal cylinders, is used as a source of power.

This engine is oil-cooled; a type of cooling system which prevents formation of rust and scale, and in conjunction with a special type of governor employed, gives assurance against over-heating and ensures a longer life for the engine. The manufacturers claim that every Rumely winch manufactured is still working, though the first one was put into service 19 years ago.

The manufacturers also claim that operating and maintenance costs on this machine are unusually low. The winch is equipped with a large diameter winding drum, which prevents kinking of the hoisting cable, thus giving longer life, and greater security to the operator. An auxiliary drum permits of attaining greater speed on lighter jobs if desired, and the hoisting cable can be easily transferred from one drum to the other. The machine has sufficient power to permit of pulling rods or tubing from wells in excess of 3000 feet in depth at high speed.

The Empire companies, operating 3000-foot wells in an Oklahoma field, reports that a string of rods may be taken out and run back into the well in 46 minutes, and that a round-trip may be made with both rods and tubing in 5 hours and 40 minutes with this machine.

A spudding line and shoe and an attachment in the nature of a wrist-pin fastened to the large gear drive-wheel of the machine, in an eccentric position with respect to the axis of rotation, permits churning a string of clean-out tools in the

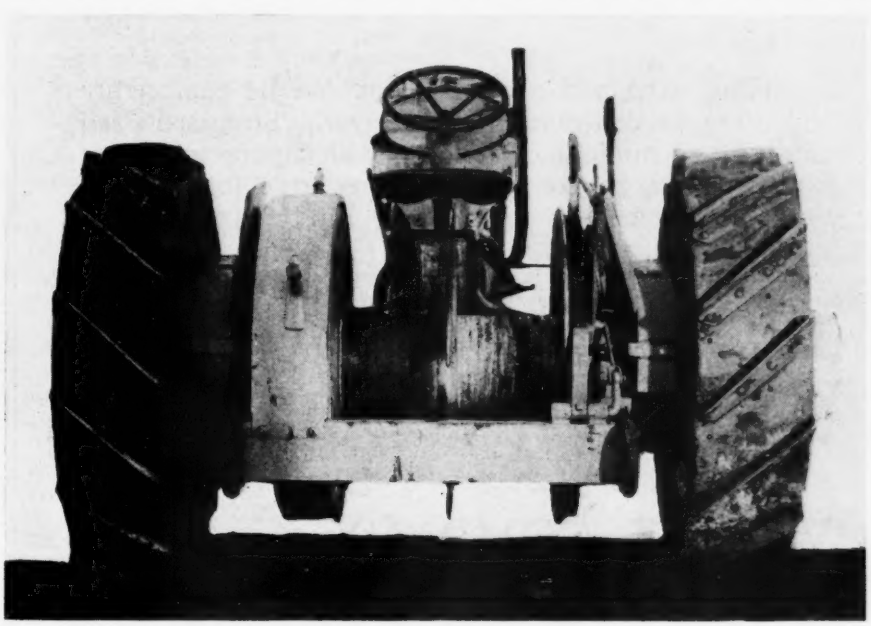
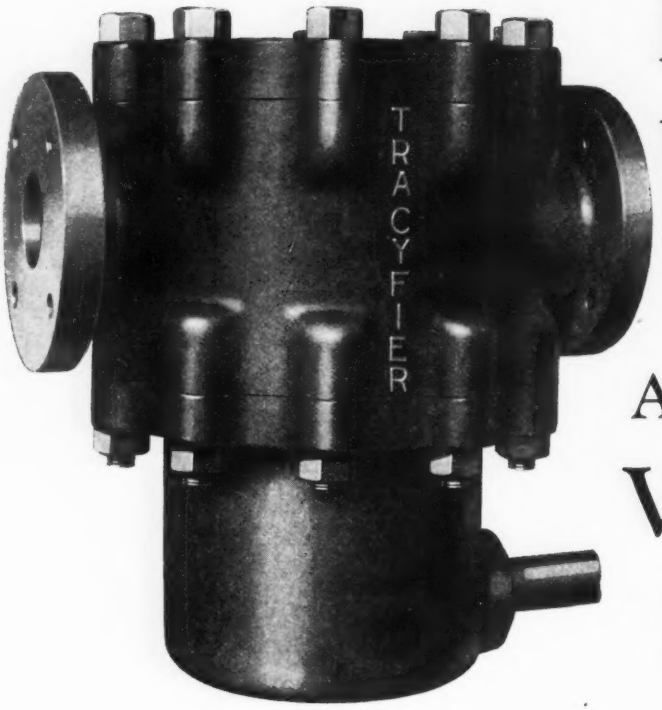


Fig. 4.—Hopper winch, type "E," mounted on Fordson tractor. (Courtesy of Hopper Machine Works, Bakersfield, Calif.)

PIPE LINE TRACYFIERS



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A I R Repairs to air tools and out-of-service time can be greatly reduced by inserting a Pipe Line Tracyfier in the line. An increase in operating smoothness will be apparent at once. The savings in air alone due to lessened wear on valves and pistons in air tools should soon repay the cost of the Tracyfier. Dry air lengthens the life of air hose. The Pipe Line Tracyfier will remove *all* dirt and drops of water or other liquid from the air leaving it clean and dry.

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well. The operator's platform is at the rear of the machine, where he has a full view of the rig and working parts of the equipment, and yet is out of danger in the event that a line should break.

The machine is mounted on wheels and is designed to be moved about under its own power. A powerful brake on the transmission shaft locks the rear wheels when the machine is in service at the well, but if necessary, it may also be chained to a steel "dead-man" buried in the earth.

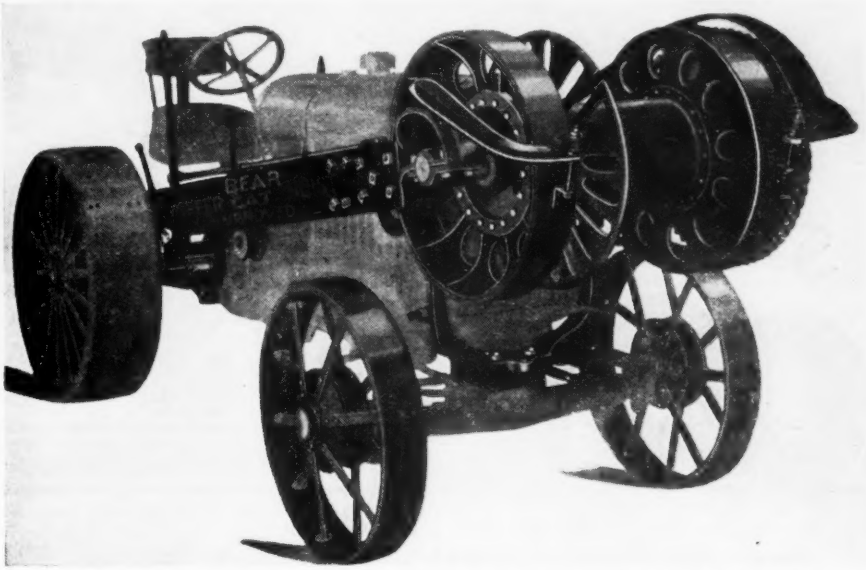

Fig. 6.—Shaffer "Bear Cat" hoist. (Courtesy of Shaffer Specialty Co., Tulsa, Okla.)

The Hopper Machine Works of Bakersfield, Calif., manufactures a type of winch that has proven popular in western oil fields. The Hopper winch is made in four sizes, the two medium sizes being designed for mounting on and operating from the drive shaft of a 3½-ton or 5-ton Mack motor truck, while the smaller and larger sizes are designed to be mounted on and operated by a tractor. A Fordson tractor is used in connection with the smallest machine, while a "Caterpillar 60" is used for the largest.

The five-ton Mack truck (See Fig. 2) is equipped with an 80-horsepower engine and when used as a power plant for one of these machines, is capable of withdrawing 3500 feet of 2½-inch upset tubing from a well at high speed. The truck mechanism provides four forward speeds and one reverse. The machine powered with the "Caterpillar 60" tractor (See Fig. 3) has more power, and is designed for handling tubing in wells from 4000 to 5000 feet deep.

This is one of the most powerful winches on the market, being capable of lifting 40,000 pounds with two lines. The smaller machine on the Fordson tractor (See Fig. 4) will draw 2000 feet of 2-inch tubing. The Hopper machines are characterized by a dependable type of construction throughout; all steel, alloy steel shafts, anti-friction brakes and clutches, roller bearings and all gears machined, heat-treated and hardened.

The Cardwell-Keltner all-steel winch is another unusually powerful machine capable of pulling rods and tubing from wells 5000 feet deep, and may also be adapted to bailing and cleaning operations. This machine is equipped with double-reduction gearing, which provides six forward speeds and two reverse, without the use of auxiliary speed drums, and without changing lines from one drum to another.

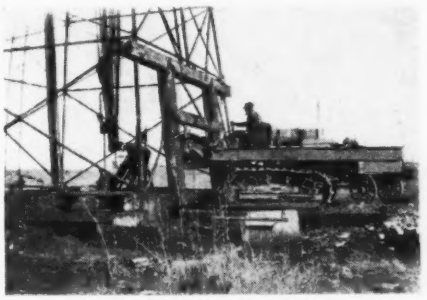

Fig. 5.—Cardwell-Keltner all-steel winch engaged in pulling tubing. (Courtesy of All-Steel Products Mfg. Co., Wichita, Kan.)

The winch is in reality provided with two different driving mechanisms, one a high-speed, light-duty mechanism for use in handling light strings of rods, or for manipulating the tubing block in the derrick when not under load, and the other a low-speed, heavy-duty driving mechanism used in handling heavy strings of rods or tubing. The drum may be entirely released from the driving mechanism by simply throwing a clutch, and is equipped with powerful brakes so that tubing may be run into the well under its own weight. Single-line speed variation ranges from 50 to 1000 feet per minute, and single-line pull from 20,600 to 900 pounds.

With the low-speed gear, a 3500-foot string of rods can be started out of the well with the motor idling, and a 3500-foot string of 3-inch tubing can be handled with ease and safety. This machine is mounted on and powered by a "Caterpillar 30" tractor and is quickly moved about under its own power, negotiating all roads and the most difficult of road conditions. The hoisting drum on this machine overhangs in front of the tractor, so that it may be projected well inside the derrick, thus eliminating the necessity for bull-wheels, floor blocks or other auxiliary equipment. (See Fig. 5). This winch is built as a separate and complete unit apart from the tractor in conjunction with which it is designed to operate. It can be assembled on any "Caterpillar 30" tractor in two hours by two men, and can be as quickly

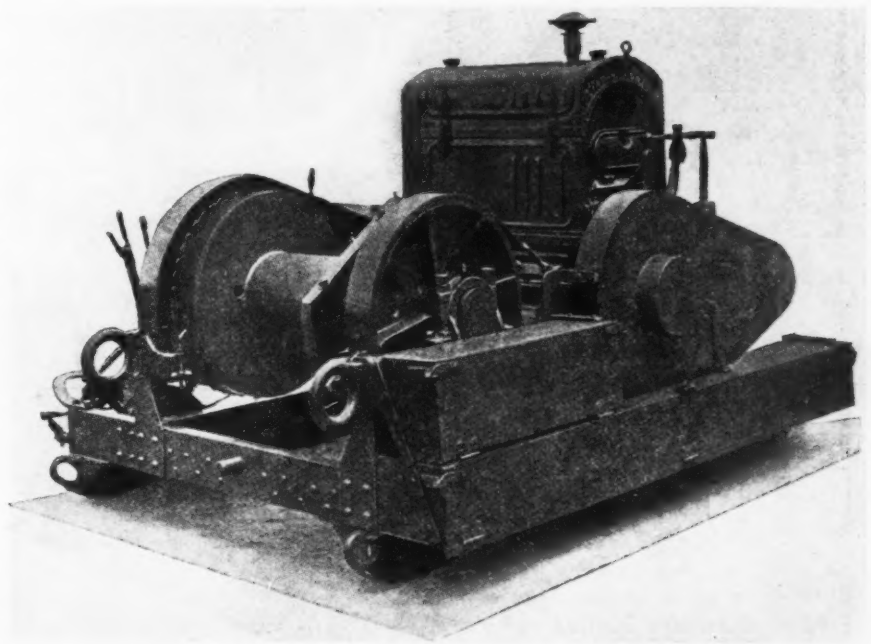

Fig. 7—W-K-M portable winch. (Courtesy W-K-M Co., Houston)

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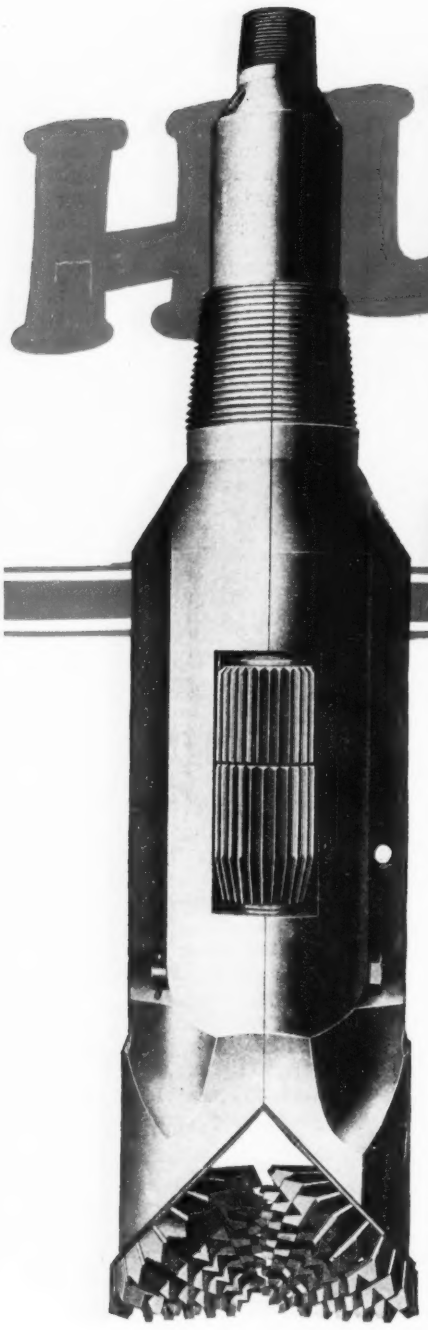

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removed, thus releasing the tractor for other duties when the winch is not required.

Another somewhat similar type of winch is the Shaffer "Bear Cat Hoist," illustrated in Fig. 6. This winch is designed for mounting on and operation by a McCormick-Deering 10-20 tractor, which develops a peak rating of 37 horsepower. The mechanism provides three forward speeds, one reverse, with releasing features which permit the drum to revolve independently of the driving gears. Powerful brakes and a special method of anchoring the tractor, are also provided. Due to the overhang of the hoisting drum, the winch may be projected inside the derrick panels so that the line pull comes directly on the crown pulley.

A hoisting speed as great as 295 feet per minute may be secured in high gear with a load of 2240 pounds. In low gear, 11,150 pounds may be picked up and hoisted with a speed of 59 feet per minute. In addition to pulling rods and tubing, the machine is also well adapted for use in bailing operations, and has been demonstrated to be capable of making a round trip with a 5-inch by 27-foot sand pump, in and out of a 3000-foot hole containing 200 feet of fluid, in less than eight minutes. The machine travels on the road under its own power at a speed as great as 10 miles per hour.

A type of equipment that has been growing in popularity in the Mid-Continent region is the Samson winch and pulling machine. The Samson winch is designed for mounting on and operation by either a Fordson or International tractor, giving four pulling speeds, and can be installed without tearing down or rebuilding the tractors in any way. Two men can install this winch on any Fordson or International tractor in one hour.

The winch provides a line speed of from 400 to 100 feet per minute, and the size designed for use on the Fordson tractor, is capable of lifting a weight of 6000 pounds at the latter speed. For use with this winch, the Samson pulling machine (also illustrated in Fig. 7), consists of a two-legged mast made of $5\frac{3}{16}$-inch—20-pound casing clamped to a horizontal sill of $8\frac{1}{4}$-inch—32-pound casing, supporting two 16-inch sheaves. The mast is permanently mounted on two rubber-tired wheels for convenient transportation in a horizontal position. It is readily hoisted into working position with the aid of the winch.

The W-K-M Co., Inc., of Houston, Texas, manufactures two different types of winches that are of interest in this discussion, one mounted on a tractor, very similar in form to those described above, and another semi-portable winch mounted on skids. The tractor winch is powered by an International Tractor and has six speeds, providing a line speed of from 67 to 405 feet per minute, and a single-line lifting capacity of from 2500 to 15,000 pounds.

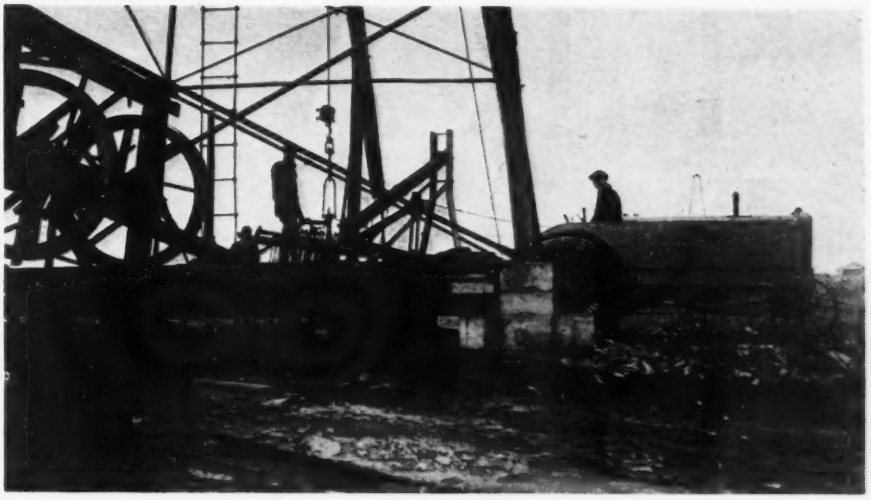


Fig. 8—Rock Island model 70 tractor winch. (Photos courtesy of Rock Island Plow Co., Rock Island, Ill.)

With two lines, it is capable of lifting 5000 feet of 2-inch tubing. The semi-portable W-K-M winch, illustrated in Fig. 7, is compact, rugged and powerful; a self-contained unit mounted on steel skids and equipped with a Hercules engine. It mounts quickly on any truck platform under its own power, and with the aid of heavy grip-bolts may be rigidly attached to the truck bed for rapid transportation about the field and for use in pulling rods and tubing at individual wells. In the case of a more protracted job, involving swabbing, bailing or cleanout-out work, the machine may be lowered to the ground and left at the well, thus releasing the truck for other duties.

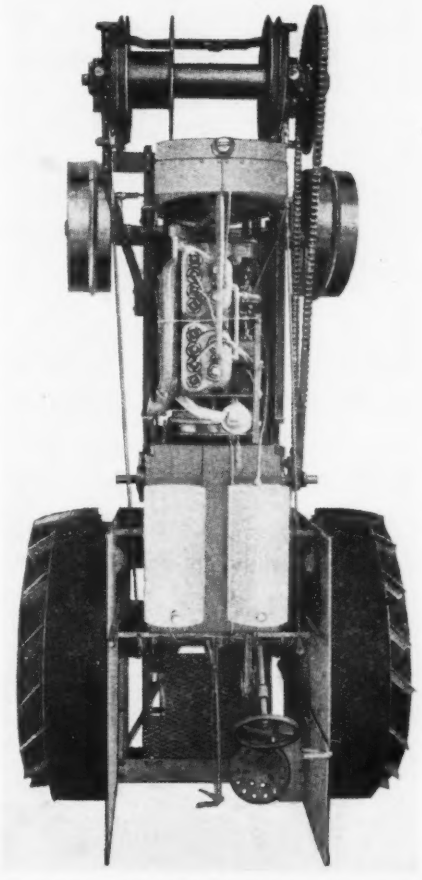


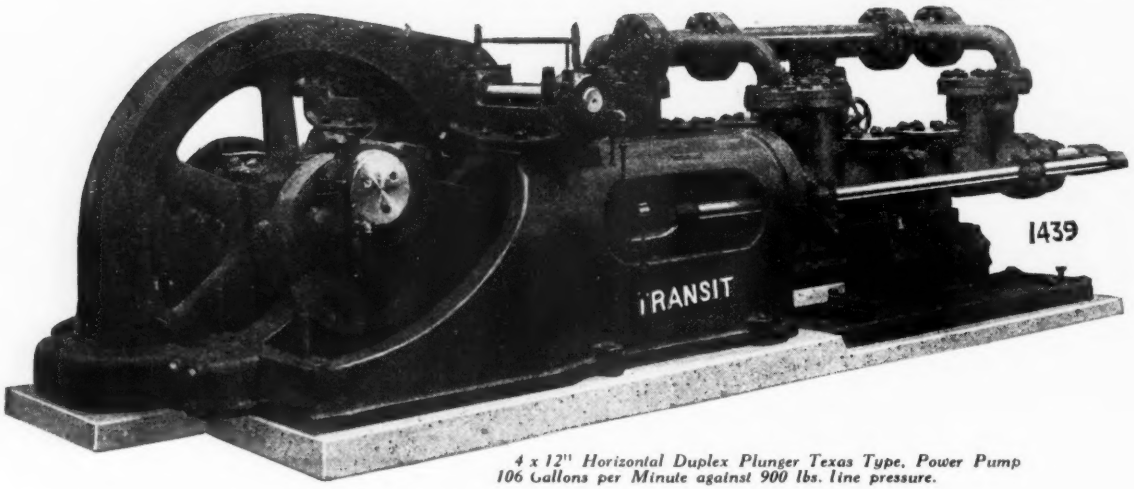
Fig. 9—Top view of Heider winch. (Courtesy of Rock Island Plow Co.)

The Rock Island Plow Co., Rock Island, Ill., a company long engaged in the manufacture of equipment of the general type of that with which we are here concerned, has within recent years featured several types of oil-field tractor winches. The Rock Island Model 70 tractor winch, illustrated in Fig. 8, especially designed for pulling rods and tubing, is equipped with a 40-horsepower engine, and develops a pull of 10,000 pounds on a single line. The line travel varies from 100 to 500 feet per minute, depending upon the load. It is capable of handling 3000 feet of rods with a single line, operating directly over the crown pulley. The drum revolves freely. without connection to the engine, in lowering rods after disconnecting.

The machine is equipped with two large band-brakes, 30 inches in diameter with 4-inch face, controlled by a convenient foot or hand lever. On the road, this machine is capable of traveling ten miles per hour. An earlier type of tractor, also manufactured by the Rock Island Plow Co., many of which are in oil field service, known as the Heider tractor winch, is illustrated in Fig. 9. This is a less powerful machine than the model pictured in Fig. 8, being equipped with an engine developing from 12 to 20 horsepower. It is nevertheless capable of lifting a 4500-pound load at the rate of 175 feet per minute. Driving through a pair of bull wheels, with two lines in the rig, it will lift 2200 feet of 2-inch tubing.

Many oil producers prefer a more versatile machine than most of the simple types of winches described above: A machine equipped for churning a string of clean-out tools,

TRANSIT Power Pumps



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The fluid end is made up of four plunger chambers all made from one pattern, therefore strictly interchangeable. This same feature is found in the plungers, pedestals, discharge pipe manifolds and base plates.

Illustration shows pump arranged for left-hand drive with pinion gear on top of frame. However, either right, or left-hand drive can be furnished with driving pinion on end or on top of frame.

These pumps are made in sizes between 3½ x 12" and 5 x 24", and for pressures between 500 and 1000 lbs.

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redrilling, deepening, bailing or swabbing, or even handling a light string of casing. Though almost any portable drilling machine may be used for such purposes, some manufacturers have designed rigs particularly for this service. The Star Lease maintenance machine, illustrated in Fig. 11, is typical.

This machine, mounted on a tractor, moves about under its own power, completely assembled as shown in the illustration, except that the mast is carried in a horizontal position. The telescoping steel mast may be raised with the engine power. This machine performs all the functions of a tractor winch, and in addition has a walking beam suitable for running a cleanout string of tools, or for use in miscellaneous fishing jobs; also, a separate bailing drum and calf reel. It may be used equally well under a standard derrick, or with its own telescoping pipe mast, which can be raised or extended to three different heights while in position, with the aid of the power.

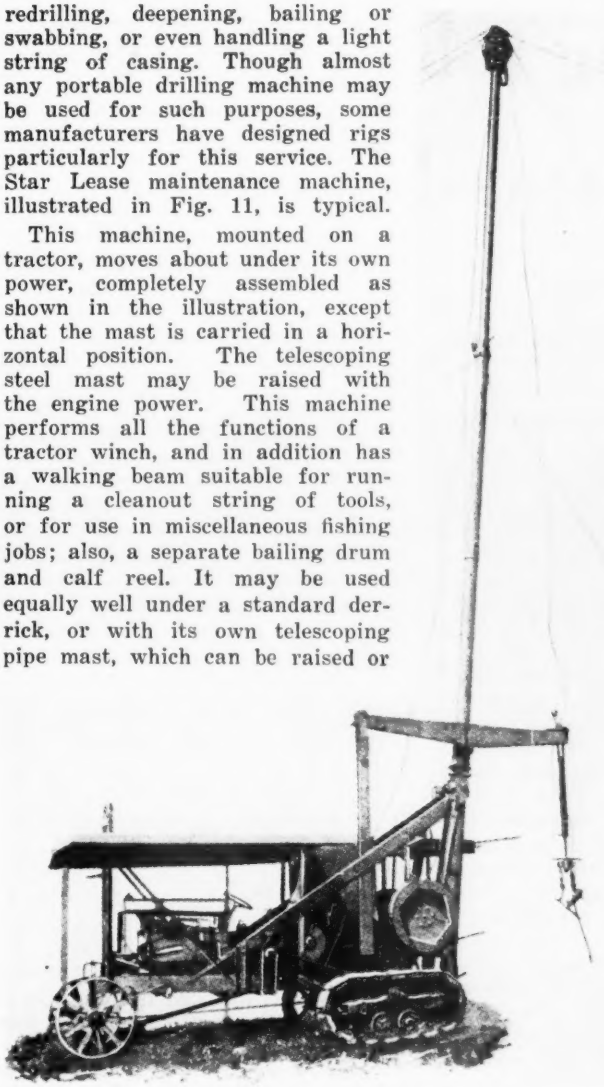


Fig. 12.—The Ohio well cleaner. (Courtesy of Traction Machine Co., North Baltimore, O.)

The machine is powered by a McCormick-Deering tractor of 15-30 horsepower, which may operate on natural gas, gasoline or kerosene. It operates on from 10 to 20 gallons of gasoline per day. Three speeds are provided on all reels. Cleaning out operations may be conducted to depths as great as 3000 feet. The total weight of the machine, including the mast, is about 21,550 pounds, nearly 75 per cent of which is carried by the rear "crawler" wheels. It negotiates all ordinary roads under its own power, at a speed of from 1⅛ to 2¼ miles per hour. The machine can be helped over unusually steep grades with a steel cable from the bull-reel or calf-reel ahead to a tree or other stationary object.

A somewhat similar type of machine, designed for clean-out, redrilling, bailing and swabbing operations, as well as pulling rods and tubing, is the "Ohio Cleaner," manufactured by the Traction Machine Co. of North Baltimore, Ohio. This machine is illustrated in Fig. 12. The entire machine is mounted on a Fordson tractor, which serves all power purposes, both in locomotion and in operation at the well. A worm-gear drive operates the walking beam. The total weight of the machine is about 12,000 pounds.

Where electric power is available at the individual wells, most producers will prefer to make use of electrically operated pulling equipment. This usually takes the form of an electric motor and geared hoisting drum unit, mounted on the bed of a motor truck or trailer. Temporary flexible cable connections are made from the power panel at the rig to the truck whenever pulling or repair operations are necessary.

The portable pulling outfits used by the Midwest Refining Co. in the Salt Creek field of Wyoming are typical. Here the wells vary from 1000 to 2860 feet in depth and are pumped with 5-horsepower motors incapable of use in cleaning operations. When repair work at a well is necessary, portable equipment is used. For rod-pulling jobs, this company has 32 outfits, each equipped with a 20 - horsepower, slip-ring motor, driving a hoist of the single - drum type with two compartments. The drum has a capacity of 1800 feet of half-inch rope, and the whole outfit is mounted on a Dodge - Graham truck. For pulling tubing 20 - 40 horsepower portable outfits are in use, connected to hoists of similar design, but heavier than the rod-pulling hoists. Thirteen of these are mounted on 3-ton trucks and eleven of them on trailers which are pulled about with the air of Fordson tractors. These outfits are capable of use in swabbing, cleaning paraffin from tubing and bailing.

For cleaning-out work, 15/35 horsepower, two-speed motors of the type used in beam-pumping, are used. The motor and controller are mounted as a unit on a structural steel framework, which is readily moved about with the aid of a 5-ton truck. Small concrete foundation piers are provided at each well for this equipment and a clean-out unit may be rigged up at a well when needed in from two to four hours. Such units are belted to the rig counter-shaft. For cleaning out wells pumped by band-wheel powers, a gas engine-driven Star rig is used.

Summary

This article emphasizes the advantages of portable pulling and cleaning equipment on the oil lease, in lieu of stationary pulling equipment at the individual wells. It is shown that important economies in first cost and maintenance and in operating expense of well-repair equipment are possible through the use of such devices. The better known types of well-pulling and cleaning machines available on the market and in use in the oil fields at the present time, are briefly described.

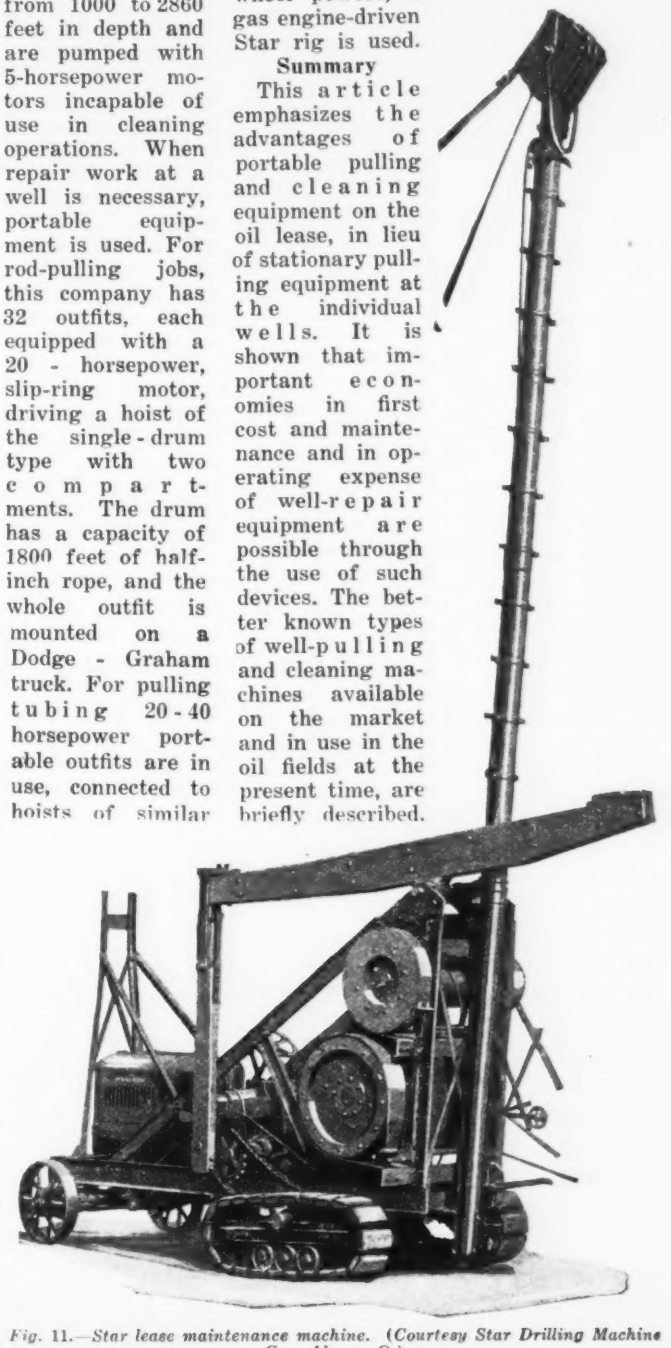


Fig. 11.—Star lease maintenance machine. (Courtesy Star Drilling Machine Co., Akron, O.)

A.P.I. Standard Casing Tubing Drill Pipe As Used in Arkansas-Louisiana

By D. B. Harris*

Presented before Texas-Louisiana-Arkansas District, American Petroleum Institute Division of Development and Production Engineering, Galveston, Texas, Sept. 5-6

THE adoption of A.P.I. standards on casing by the leading operators of North Louisiana and South Arkansas has come about more rapidly than the most sanguine advocates of this program could have prophesied.

Due to limited new operations in this territory since the A.P.I. standard casing has been available, the natural surmise was that it would be many years before there would be much demand for A.P.I. casing. The opposite has been true.

A questionnaire sent to the leading operators in this section reveals the fact that a decided preference for A.P.I. casing exists at this time.

Supply companies, practically without exception, are specifying A.P.I. standards on all orders to the mills for casing for their local stocks.

It is true that a certain amount of old-style casing is still being used. This is to be expected since practically all operating companies had some old casing in stock, and as supply companies were naturally anxious to move such old-style casing as they had on hand.

Some operators are still placing orders for old-style 6⅝-inch casing, a very popular size, in our territory. This is doubtless due to the fact that this size was not originally adopted as standard by the A.P.I., and many are still unaware that 7-inch O.D. casing, identical in dimensions with old-style 6⅝-inch casing, is among the special sizes covered by Table 1-A, A.P.I. Supplementary Standard Casing, (1) added by the Pipe Committee, on request of certain districts.

In this connection, traveling representatives of the various tube companies could do some good work by educating supply men to the fact that A.P.I. standards take care of any size pipe needed. Many supply men are unaware that 7-inch A.P.I. casing can be had, and are still taking orders for old-style 6⅝-inch casing and other sizes under the old specification which can now be had in A.P.I. standard sizes.

Many of the smaller operators depend upon supply men for information on casing, and if the supply men are not fully alert on what can be had in A.P.I. sizes, old style is often specified when there would be no objection to A.P.I. standards. Supply men could also do much to defeat the tendency on the part of some to specify threads that are not standard when specifying A.P.I. casing standard in other respects.

OPERATORS in North Louisiana and Arkansas are adopting the American Petroleum Institute standard specifications on casing, even more rapidly than had been hoped for.

Supply men should familiarize themselves more fully with these A.P.I. specifications, in order to inform operators what strings can be made up in A.P.I. sizes.

Placards should be posted in the supply company warehouses showing the A.P.I. standard casing sizes, to bring them more closely to operators' attention.

A.P.I. standard drill pipe is being used exclusively by drilling contractors and the larger oil companies in the North Louisiana and Arkansas fields.

Practically all companies are specifying A.P.I. standard tubing.

These are conclusions in the accompanying paper presented by D. B. Harris, division superintendent, Humble Oil & Refining Co., Shreveport, before the recent Galveston, Texas, meeting of Texas-Louisiana-Arkansas operators.

IN NORTH Louisiana and Arkansas there is a decided tendency to use casing sizes specified in Table 1-A A.P.I. supplementary standard casing, the popular sizes in our territory being 6⅝-inch, 7-inch, 8⅝-inch and 9⅝-inch O.D. casing. Since A.P.I. casing has been available, there has been some development in the Cartersville area of north Bossier parish, the Champagnolle or Rainbow City area of the East El Dorado, Arkansas, district, the Richland parish gas field of northeast Louisiana, and the deep sand of the Pine Island and Cotton Valley Districts of Caddo and Webster parishes.

In the Cartersville gas field the conservation commission specifies three strings of casing. The first string, surface casing, is usually 13-inch O.D. 45-pound 8-thousandths, or 10¾-inch O.D. 40-pound 8-thousandths casing, and is set at approximately 450 feet, shutting off surface caves and water sand and gravel. The second string is set at approximately 1000 feet and is most often 8⅝-inch O.D. 32-pound 10-thousandths casing. This is a precautionary string, and provides an additional means of controlling the well in the event of a blowout. The final string is set at about 3100 feet and is usually 6⅝-inch O.D. 24-pound 10-thousandths casing.

THE rules of the conservation department require that the surface casing be jacketed from bottom to top with cement, that the second string be jacketed with cement from the bottom upward into the surface casing, and that the final strings be jacketed with cement from the bottom upward into the second string.

In the Richland parish gas area the conservation commission specifies that a minimum of three strings of casing shall be used. The first string shall be set at not less than 200 feet and shall be jacketed from bottom to top with cement. The second string shall be set at not less than 900 feet, and shall be jacketed with sufficient cement to reach up into the surface casing.

The final string shall have a mill test of not less than 1600 pounds per square inch, and a field test of not less than 1600 pounds per square inch, with a safety factor against collapsing of not less than two at the depth at which it is set. This string must be jacketed with sufficient cement to reach from the bottom up into the second string of casing and is set from 2400 to 2500 feet on top of the gas rock.

The most popular casing schedule in this field is 16-inch O.D. 70-pound 8-thousandths casing for the first string, 10¾-inch O.D. 40-pound 8-thousandths casing for the second string, and 7-inch O.D. 26-pound 10-thousandths casing for the final string. By using the 10¾-inch O.D. 40-pound casing for the second string

(1) A. P. I. Stds. No. 5-A, "Casing Drill Pipe and Tubing."

*Division Superintendent, Humble Oil & Refining Co., Shreveport, La.

it is possible to drill a 9⅞-inch hole in which to set the final string. This has proved to be the best practice, as the final string can be landed with less difficulty, and, more important, there is an increased annular space outside of the final string for cement.

It has been proved that the setting of 6⅝-inch O.D. casing inside 8⅝-inch O.D. casing does not permit of enough cement space. One of the worst craters in that field is said to have developed from closing in a well in which 6⅝-inch O.D. casing was set and cemented in a 7¾-inch hole. In the Cartersville and Richland parish fields about half the casing used was old-style, and about half was A.P.I. standard. There is no objection on the part of operators to the use of present A.P.I. standards, and the use of the old-style casing was due to the fact that the old-style casing was in stock.

THE deep sands at Pine Island and Cotton Valley brought out the most extensive use of A.P.I. standards in casing. In these fields the conservation commission specified the setting of intermediate strings of casing to protect upper producing sands and to afford means by which the heavy gas pressures which were encountered could be controlled.

The leading operators in the Pine Island field used approximately 200 feet of 16-inch O.D. 70-pound 8-thousandths lapweld casing, 2500 feet of 10¾-inch O.D. 40-pound 8-thousandths seamless steel casing, 3600 feet of 8⅝-inch O.D. 32-pound 10-thousandths seamless steel casing and 3900 feet of 6⅝-inch O.D. 24-pound 10-thousandths seamless steel casing.

The two larger sizes were about evenly divided between old style and A.P.I. standard.

The smaller sizes were all A.P.I. standard. One large company operating in that field has adopted the following A.P.I. Standard string for all operations: 16-inch 75-pound 8-thousandths, 13⅜-inch 68-pound 8-thousandths, 10¾-inch 55.5-pound 8-thousandths, 8⅛-inch 39.5-pound 10-thousandths and 5¾-inch 22.5-pound 10-thousandths, all seamless steel.

At Cotton Valley perhaps the most common casing program was 500 feet of 16-inch O.D. 70-pound 8-thousandths lapweld casing, 3500 to 3600 feet of 8⅝-inch O.D. 32-pound 10-thousandths seamless steel casing and 4200 to 4500 feet of 6⅝-inch O.D. 26-pound 10-thousandths seamless steel casing.

In the writer's opinion, a preferable casing program for Cotton Valley is approximately 500 feet of 16-inch O.D. 70-pound 8-thousandths lapweld or seamless casing, 3600 feet of 9⅝-inch 36-pound A.P.I. standard seamless steel and 4200 to 4600 feet of 7-inch 28-pound A.P.I. standard seamless steel casing.

The latter selection gives more room on the inside and more cement space on the outside of the last string. These points are worthy of consideration on deep drilling operations where high gas pressures are encountered. Louisiana conservation rulings prescribe that all casing used in the deep, high pressure areas shall be tested at the well by means of hydraulic pressure pumps. This department also prescribes the complete jacketing in cement of all strings exposed to formations.

In the Champagnolle or Rainbow City area of the East El Dorado, Arkansas, district, two of the largest operators are not specifying A.P.I. standards for casing, although they are in most cases using sizes covered by A.P.I. specifications. Only two strings of casing are set in this field.

The sizes generally used are 13-inch O.D. or 10¾-inch O.D. for the first string, set at 200 to 300 feet. For the second, final, string 8⅝-inch O.D. 32-pound casing or 7-inch O.D. 24-pound casing is usually set at 3100 to 3200 feet. One of the larger companies operating there specifies 13-inch O.D. 36-pound 10-thousandths casing and 8⅝-inch O.D. 32-pound 8-thousandths casing.

On their other program they specify 10¾-inch O.D. 32-pound 8-thousandths for the surface string and 7-inch O.D. 24-pound 10-thousandths casing for the final string. The company referred to, as far as is known, has no objection to A.P.I. standards, and has at various times discussed the adoption of the A.P.I. standards, but has simply failed to adopt them.

Summing up, there appears to be no objection on the part of the operators in North Louisiana and Arkansas to the A.P.I. standards on casing. Those who have used the A.P.I. casing are all well pleased with the results obtained. Those who have not heretofore specified A.P.I. casing pretty generally advise that they have no objection to so specifying in the future. In the writer's opinion, a certain amount of education work would be beneficial.

Possibly the posting of placards in supply houses showing A.P.I. casing sizes covered in Table 1 and 1A of A.P.I. Standards would be helpful in bringing to the attention of field men the fact that A.P.I. standards cover all requirements. Practically all of the major companies in this territory have adopted, or are soon to adopt, A.P.I. standards on casing.

A.P.I. Standard Drill Pipe

At the present time A.P.I. Standard drill pipe is the only drill pipe being ordered. All of the larger companies and drilling contractors are using it exclusively. Supply houses are selling A.P.I. Standard drill pipe exclusively. The most common sizes are 4½-inch 13.75-pound and 4½-inch 16.60-pound, 3½-inch 13.30-pound and 2⅞-inch 10.40-pound A.P.I. Standard drill pipe.

A number of companies and contractors carrying on deep drilling operations are also using 6⅝-inch 25.20-pound and 5⅛-inch 25.25-pound or 22.20-pound A.P.I. standard, all interior upset end, seamless steel. Within a very short time practically 100 per cent of the drill pipe in use in North Louisiana and Arkansas will be A.P.I. Standard.

A.P.I. Standard Tubing

The sizes of oil well tubing most generally used in North Louisiana and Arkansas are 2-inch 4.6-pound and 2½-inch 6.4-pound plain end. There is a small amount of 4 and 3-inch tubing in use in some of the fields where large volumes of water must be handled. The fact that plain end tubing predominates is due to the fact that most of the oil production comes from depths of less than 3000 feet. Some of the larger companies are using upset end tubing in all wells of 2000 feet or greater depth.

A check of the leading companies reveals the fact that practically all are now specifying A.P.I. standard tubing. The choice of those using steel seems to be for exterior upset seamless tubing. Some of the large companies are using both steel and wrought iron tubing, in both plain end and upset end depending on conditions. One large company continues to specify old-style tubing for use in the old fields, but will use A.P.I. standard exclusively in the future in new fields. Nearly all other companies are buying A.P.I. Standard tubing regardless of what field it is to be used in. Supply companies report that the demand for old-style tubing has about passed, and all stock carried in the future will be A.P.I. Standard.

The users of A.P.I. standard casing, drill pipe and tubing in this territory are, as far as can be ascertained, very well pleased with the quality, design and workmanship found in the A.P.I. standards. Enthusiastic users are the best advertisers, and it is safe to assume that A.P.I. standards will be adopted by a steadily increasing number of operators. A safe prediction is that a few years hence all casing, drill pipe and tubing purchased in North Louisiana and Arkansas will be A.P.I. Standard.

Mather & Platt, Ltd., of Manchester, England, have put out a booklet on "Centrifugal Pumps in the Oil Industry," which describes the uses of these pumps, various drives that may be employed to operate them and a considerable amount of information valuable to engineers for figuring the flow of oils of various viscosities through pipe lines.

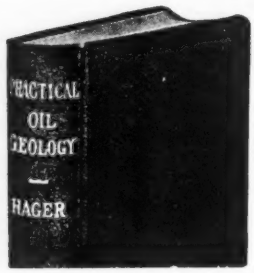
Curtis Pneumatic Machinery Co., St. Louis, will be among the exhibitors at the American Engineering Association convention and will have the first showing of its 75th anniversary line, completely re-designed and in many ways a radical departure in design.

Where you and industry are identical—

Every successful business is constantly on the lookout to improve its machinery and methods.

You, as an individual, in order to progress must devote a reasonable part of your time to *improving your mind.*

Good books on various phases of the oil industry will improve your mind, and pay you big dividends.



Practical Oil Geology

Dorsey Hager, petroleum geologist and engineer, has just come out with his new fourth edition of PRACTICAL OIL GEOLOGY.

His book deals with the application of geology to oil field problems, with new material on the origin of oil; porosity of oil sands; regional and local metamorphism of dykes and volcanic flows and their effects on oil structures; folding under volcanic flows; shallow core drill testing for structures; new tables on oil production; description of work of torsion balance and seismograph; new statistics on geological successes, etc.

PRACTICAL OIL GEOLOGY covers the work of outlining prospective oil lands, drilling and of actual oil-field development brought up to date. It is a clear, concise and practical work on oil geology.

309 pages, illustrated—Price $3

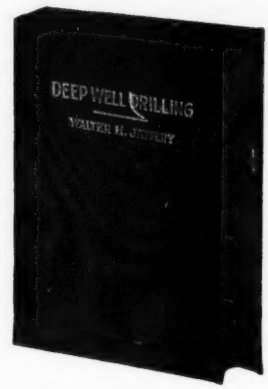
OIL-FIELD EXPLORATION and DEVELOPMENT

OIL-FIELD EXPLORATION and DEVELOPMENT by Dr. A. Beeby Thompson is a monumental work on the development of better methods of drilling and producing oil. Dr. Thompson is an authority on fields in Europe, the United States, South America and Mexico where he has operated.

Volume I covers Oil-Field Principles; Volume II, Oil-Field Practice. An incident which occurred several years ago in connection with the author's first book on oil field development gives an idea of the extremely practical information in these volumes.

An Ohio operator reshot a producing well and when cleaned out after the shot, found the well to be entirely dry. He remembered reading in Dr. Thompson's book about a stunt tried out in Galicia. He tried it, restored capillary action in the sand and the well is pumping yet.

OIL-FIELD EXPLORATION and DEVELOPMENT is a gold mine of practical information for the production engineer and field man. Both volumes $20—1178 pages, or $10 per single volume.



The second edition of "Deep Well Drilling" by Walter H. Jeffery is just out. The material in the first edition has been rewritten thruout with several new chapters on improvements in the art of drilling.

"Deep Well Drilling" discusses exhaustively cable tool drilling, rotary drilling, core drilling in all their phases; tells how to fish for lost tools; how to case, how to use packers, how to cement and how to shoot; how to plan operations intelligently; specify material, etc.

Every man engaged in the production of oil should have a copy. 648 pages, illustrated, price $6.00.

Cut out and mail

National Petroleum News
Room 705, 1213 W. 3rd St., Cleveland, Ohio

I want the books checked below. Enclosed is check or money order for $_____

(Add 15 cents for foreign postage)

- ☐ *Practical Oil Geology—$3*
- ☐ *Oil-Field Exploration and Development—$20*
- ☐ *Deep Well Drilling—$6*

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New Publications

Patents, Law and Practice, by Oscar A. Geier, is just off the press. This is the fourth edition of the work, revision of the third edition, which appeared in 1924, having been made necessary, it is stated in the preface by changes in rules of practice in this and other countries.

The book states in simple language what a patent is, what it covers, how to make application, what is and what is not patentable and deals with the procedure of obtaining copyrights. Charges for obtaining patents, examinations in the patent office, searches, appeals, infringement and infringement suits are discussed. The author is a member of the law firm of Richards & Geier, New York and Washington.

New Patents

September 4, 1928

REFINING

Process and Apparatus for Cracking Oil—Gustav Egloff, Chicago, Ill., assignor to Universal Oil Products Company, Chicago, Ill. Filed Dec. 31, 1920. No. 1,682,742.

Process and Apparatus for Treating Petroleum Oil—Gustav Egloff, Chicago, Ill., assignor to Universal Oil Products Company, Chicago, Ill. Filed Jan. 30, 1923. No. 1,682,744.

Method of Distillation of Petroleum—Edward W. Isom, Winnetka, Ill., assignor to Sinclair Refining Company, Chicago, Ill. Filed May 6, 1924. No. 1,683,135.

Fractional Distillation of Petroleum—John E. Bell, Brooklyn, N. Y., assignor to Sinclair Refining Company, Chicago, Ill. Filed March 27, 1924. No. 1,683,150.

Method and Apparatus for Distilling Petroleum Oils—John E. Bell, Brooklyn, N. Y., assignor to Sinclair Refining Company, Chicago, Ill. Filed April 1, 1924. No. 1,683,151.

Apparatus for Cracking Hydrocarbons—Eugene C. Herthel, Chicago, Ill., assignor to Sinclair Refining Company, New York, N. Y. Filed June 11, 1927. No. 1,683,184.

Distillation of Crude Petroleum—Edward W. Isom, Scarsdale, N. Y., and Eugene C. Herthel, Chicago, Ill., assignors to Sinclair Refining Company, New York, N. Y. Filed June 11, 1927. No. 1,683,193.

Heat-Exchanging Apparatus—Carl F. Braun, Pasadena, Calif. Filed Aug. 31, 1926. No. 1,683,236.

Art of Improving Mineral Oils—Forrest Wayland Eley, Newark, Ohio, assignor to Anglo-California Trust Company. Filed March 15, 1923. No. 1,683,288.

Art of Refining Oil—Harry F. Glair and Oscar E. Bransky, Whiting, Ind., assignors to Standard Oil Company, Whiting, Ind. Filed July 7, 1922. No. 1,683,289.

PRODUCTION

Method of and Apparatus for Inducing and Increasing the Flow of Wells—Clarence Ochs and Bud Hildebrand, Long Beach, Calif., assignors to Chicago Pneumatic Tool Company, New York, N. Y. Filed March 21, 1925. No. 1,682,929.

Oil and Gas Well Sand Tester—William O. Harris, Oklahoma City, Okla. Filed Dec. 21, 1927. No. 1,683,031.

Rotary Jar—Robert McDonald Pyles, Fullerton, Calif. Filed May 2, 1921. No. 1,683,096.

Oil Saver—Clayton Severns and John N. Hicks, Los Angeles, Calif. Filed Dec. 28, 1927. No. 1,683,107.

Temporary Well Capper—George B. Ervin, Weston, W. Va. Filed Feb. 16, 1927. No. 1,683,173.

Tandem-Barrel Well Pump—Merton T. Archer, Pittsburgh, Pa., assignor to The National Supply Company, Toledo, Ohio. Filed April 18, 1927. No. 1,683,435.

MISCELLANEOUS

Halogen Treatment of Oil Shale—Gustav Egloff, Independence, Kans., assignor to Universal Oil Products Company, Chicago, Ill. Filed Jan. 14, 1921. No. 1,682,743.

Gas Holder—John H. Wiggins, Bartlesville, Okla. Filed July 20, 1925. No. 1,683,005.

INDEX TO ARTICLES

Selected Bibliography on Petroleum Technology

Editor's Note—The brief abstracts of current literature printed below are so arranged that they may be cut apart and mounted on 3" x 5" library indexing cards. The indexing numbers assigned bring the cards into logical sequence in the files. The "Decimal Index of Petroleum Technology" gives the key to the articles. This book is published exclusively by NATIONAL PETROLEUM NEWS as a service to its readers. Price $1.00. Abstracts started April 4, 1928.

Cross, R., **200.**

Cross-Index under 000.

"Handbook of Petroleum, Asphalt and Natural Gas"

1928 edition, 830 pages, 215 illustrations. Price $7.50 from Kansas City Testing Laboratory, Kansas City, Mo.

This is a new edition of a book that has for some years been one of the standard manuals and reference works on oil testing, refining and related matters. The material in the new edition has been completely revised and many new features have been added. Included in the new material will be found analyses of crudes from recently discovered oil fields; a section dealing with patents of interest to those engaged in the oil industry; a glossary of the hydrocarbon constituents of petroleum; data on cracking equilibria; methods of manufacture of chemical products, such as alcohols from gases; anti-knock properties of motor fuels; improvements in cracking; improved methods of analysis; new refining methods and additional data on natural gas. The statistical information has been brought up to date. Many useful maps, charts and tables are found in the text, including pipe-line and refinery maps and maps of producing districts; table giving distillation properties of various crudes; properties of various lubricants; air-lift data, and crude oil lifting costs.

Rudolf Lind **724.**

"A Method to Determine Hydrogen Sulfide in Petroleum Distillates"

National Petroleum News, July 18, 1928, pp. 63-66.

This paper describes a fast and reliable method for the determination of caustic soda solution which has been used for treating pressure distillate. In this case the caustic soda solution takes up from the pressure distillate components which react with iodine; consequently a hydrogen sulfide determination by direct titration with iodine solution is inaccurate.

A certain amount of the caustic soda solution containing sodium sulfide is titrated with standard hydrochloric acid, using methyl orange as indicator. Thus the alkalinity (total) due to sodium hydroxide and sodium sulfide is determined. In an equal amount of the original solution the sodium sulfide is oxidized to sodium sulfate (neutral) by means of hydrogen peroxide and the resulting solution is titrated with hydrochloric acid, again using methyl orange as indicator. Thus the alkalinity (free) due to the sodium hydroxide is found.

From the difference in the number of cubic centimeters used for total and free alkalinity, the amount of sulfide present is calculated.

Reistle, C. E., Jr., **532.2**

"Methods of Dealing with Paraffin Troubles Encountered in Producing Crude Oil"

U. S. Bureau of Mines Technical Paper 414. 39 pages. 1928. Price 15 cents from U. S. Superintendent of Documents, Washington, D. C.

One of the most troublesome problems in the production of crude oils that contain a high percentage of wax, is the accumulation of waxy hydrocarbons in the casing, tubing and flow lines, and on the rock walls of the well and within the pores of the producing sands. This report discusses the factors that cause these "paraffin" accumulations, describes methods that have proved satisfactory in preventing their formation, and sets forth ways of removing waxy deposits after they have accumulated. Work done and studies made in the Salt Creek field of Wyoming, are in large part the basis for this report.

Chilling of oil by gas expansion and evaporation of its lighter constituents, is found to be the principal cause of paraffining. This effect can be minimized by proper control of gas expansion, as by holding back-pressure on the wells. Accumulations within the sand may be largely prevented by maintaining a fluid level above the top of the productive horizon. Paraffin may be removed with the aid of standard "cleaning-out" tools, or with special appliances such as paraffin hooks, knives and augers. Solvents, such as benzol, kerosene and gasoline, properly introduced into the wells, provide a convenient means of removing accumulations. They are particularly effective when used hot. Heating methods, involving use of electric heating appliances, steam and heat-producing chemicals, are also commonly used. Explosives and reaming devices are employed to expose fresh drainage surfaces on the walls of the well. Data on the cost of cleaning wells by various methods are also given. The report is illustrated with photographs of equipment used in removing paraffin from wells, and with curves showing the solubility of paraffin wax in crude petroleum and in natural gasoline.

Chatfield, J. C. **914.4**

"Better Home Heating Burners Find Heavier Oil Suitable Fuel"

National Petroleum News, Aug. 1, 1928, pp. 69-70

The writer has compared shipments of stove distillate from Mid-Continent refineries reporting weekly to NATIONAL PETROLEUM NEWS and finds that the decline indicates a slowing up of distillate demand for home burners and a change to heavier fuels for heating purposes. Shipments for 1927 dropped 17.1 per cent over those of 1926. For the first half of 1928 shipments were 32,841,000 gallons as against 40,697,000 gallons or 19.31 per cent drop. Prices also have gone down, 38-40 distillate averaged 4.846 cents Group 3, for 1926; 3.622 cents for 1927; and for the first six months of 1928, 3.14 cents. Mid-Continent refiners on the whole are reluctant to refine distillate, preferring to use it for cracking stock. Some refiners are selling distillate only to steady gasoline and lube customers. The article also discusses contracts for the winter of 1928-1929, stating that most goods are contracted for on market date of shipment basis, and in some cases with stops of 3.25 and 4.25 cents.

Various Phases of Refinery Operation Talked Over in Open Forum

FIVE phases of refinery operations of particular interest to refiners running on Pennsylvania crude were covered in a round table discussion at the fall meeting of the National Petroleum Association at Atlantic City, Sept. 19. The subjects covered and the speakers to whom the subjects were assigned are:

"Cold Settling," L. C. Jamieson, Viking Oil Corp., "Vacuum Distillation," D. G. Brandt, Doherty Research Corp., "Modern Distillation," D. W. Hovey, Waverly Oil Works Co., "Maintaining Production," MacLean Houston, United Refining Co., "Filter House Practice," J. B. Northrop.

In discussing modern distillation, Mr. Hovey stated that replacement of batch distillation by continuous made it possible to get three times the throughput of oil in a given still battery and pointed out how a large modern distillation unit can be built on a very small space.

Mr. Northrop stated that the cost of filtering is a very large percentage of the total cost of operating a refinery where lubricating oils are filtered.

The round table discussion was led by H. S. Bell, petroleum engineer, New York.

The papers of Mr. Hovey and Mr. Northrop are published herewith.

3000 Barrels a Day Refined in Space 125 by 140 Feet

By D. W. Hovey*

MY FIRST introduction to distilling covered merely the heating of petroleum oil in almost any kind of a still, ranging from the cheese box type to the cylindrical, with very little thought given to fractionation after sufficient heat had been applied to vaporize liquid charged to these batch stills. We then ran into considerable experimentation with towers or aerial condensers, and when we had a three-cut air cooled tower taking off light, intermediate and heavy streams on batch coke stills charging crude we thought we had a really flexible and efficient tower.

That this tower was a big improvement there was no question, and was of particular advantage in forming the wax crystals making a pressable wax distillate from Mid-Continent crude oil without any rerunning. It was discovered in the use of this tower that manipulation of the heavy and intermediate streams by returning certain portions to the still for rerunning was an absolute control of the pressing quality of the wax distillate. These towers are still in use on batch stills and with the batch method of operating are undoubtedly giving good service, however, the rerunning cost of the batch distillation is excessive.

The rapid strides now being made both in furnace design and fractionating equipment are fast making obsolete the old methods of distilling, and the general tendency today is for continuous pipe still operation with efficient fractionating equipment of the bubble tower type.

One of our first changes to continuous crude distilling was with a battery of old shell stills formerly used for batch operation. With a battery of six shell stills of various sizes and shapes with no fractionating equipment other than ordinary vapor pipes, the crude throughout was increased over three times the amount formerly put through on the batch operation, and in addition the amount of rerun was reduced by more than half.

Today we approach distilling from an engineering and scientific standpoint, and are first concerned with the design of the furnace, which is now approached from a B.t.u. standpoint, which in the past was almost unheard of. We demand the type of furnace which will burn the fuel in the most efficient manner and transmit this heat to the oil with the least possible loss. The radiant heat and recirculating type of furnace have already made a material saving in fuel consumption.

The engineer now designs the furnace, calculating the number of square feet of heating surface required for a given amount of oil to be heated to the required temperature. The fractionating equipment to be added to the pipe still is probably the most important feature and allows many heat saving and controlling devices.

We now have for example a cracking still which, through the addition of crude fractionating equipment, distills off all of the natural gasoline and kerosene contained in the crude and supplies 100 per cent charge to the cracking equipment, entirely from what would otherwise be wasted heat from cracking.

The flash tower or evaporator tower and the fractionating tower of the cracking unit were duplicated for the crude distillation, partially controlling the temperature of the cracking towers by pumping the crude oil through closed coils in cracking towers and discharging into first tower or flash tower of the crude oil fractionating equipment. Superheated exhaust steam is used in this tower and the desired cuts of gasoline, naphtha and kerosene are taken from the fractionating tower which strips the crude of all the natural gasoline, naphtha and kerosene, leaving the hot topped crude ready for charging to the cracking still.

In running this type of equipment on one crude oil we developed very serious corrosion troubles and salt deposits in the cracking tubes, which made the cracking of this topped crude very dangerous, and resulted in a rather novel hook up of the cracking furnace to overcome this trouble. We knew of no practical way to eliminate this salt condition from the topped crude in a continuous operation and it was decided to distill off the gas oil from the topped crude, charging gas oil only to the cracking tubes.

We had but one furnace to do this, which required this one cracking furnace be a combination pipe still for topping crude and cracking still for cracking the gas oil produced from same furnace. The type of furnace we were using was the carborundum type radiant heat. We disconnected the convection bank of tubes and charged the topped crude from the crude evaporator tower to the convection bank of tubes and then to the evaporator tower of the cracking unit, picking up enough heat in the convection bank of tubes, and additional heat from evaporator tower, to reduce the topped crude to a heavy fuel oil of about 14 gravity, distilling the gas oil overhead from the evaporator tower and picking up same in the bottom

*Manager, Waverly Oil Works, Pittsburgh.

of the fractionating tower and then pumping with hot oil pumps from mixing tank through the cracking coils.

In order to maintain uniform velocity through the cracking coils it was necessary to maintain a uniform level of gas oil in the mixing tank, which at times required the addition of gas oil from other sources and at times it was possible to withdraw some of this gas oil back to storage. I would hardly call this a fool proof operation as it requires rather delicate balance to distill off from the back end of the furnace enough gas oil to supply the front end. However, we were successful in keeping this in operation for a considerable length of time while building a separate pipe still to replace the split furnace we were using and this experience is merely given as an illustration of the flexibility of the present distilling equipment when emergencies arise requiring operation somewhat off the beaten path.

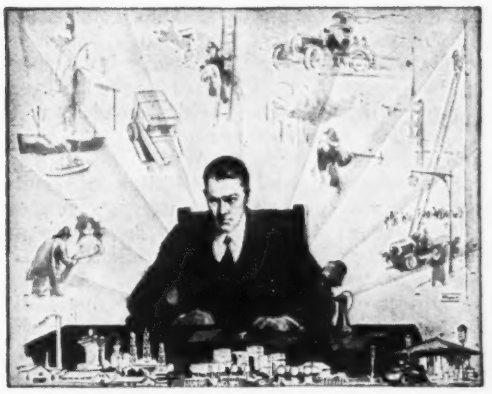
In addition to the design of the furnace, fractionating equipment, etc., there is always the chemical characteristics of the crude itself to be considered, particularly from corrosion standpoint as in the case of the crude mentioned above. We had with this one crude a plugging of the crude preheating coils which was apparently due to the salt and some emulsion peculiar only to this particular crude, which we have not had when operating with other crudes.

That this was partially if not entirely due to the salt content is borne out by the fact that after these coils were plugged, washing out with water would entirely remove this condition, and on further experimenting we discovered that the addition of varying amounts of caustic would also prevent collection of any deposit in the coils, and in fact we have removed this during the operation by using excessive amounts of caustic for a short time. The use of the caustic, incidentally, forced us to discontinue the use of aluminum gaskets which were entirely replaced with steel gaskets.

From this same crude oil corrosion troubles were very excessive in the tubular type of gasoline condenser we were using, and in order to overcome this, ammonia was injected in the fractionating tower and in the vapor outlet.

The use of chemicals to counteract corrosion naturally governs the metals used in construction of condensing equipment, etc. The use of ammonia in the one case preventing use of tubes made of copper bearing metal which we have found resists corrosion in similar type of condenser much more than the steel tubes we were compelled to use.

The development of fractionating equipment has undoubtedly been the most important and greatest boon to the distilling end of the refining industry. The present day bubble



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type tower not only eliminates rerunning but absolutely controls the distillation range of the products taken off.

Many technical papers have been published covering detailed construction and operation of bubble type towers and also arguments for and against these towers versus packed towers, together with data as to results from various shapes and sizes of bubble caps, spacing of trays, etc., which is in itself a subject of interest in deciding on actual construction.

The important fact remains that we have today distillation equipment, which, with the development of furnace and fractionating equipment will not only in one operation distill and fractionate all of the products contained in the crude oil, but will do this in a very limited area. As for example, we have on a ground space of 125 by 140 feet equipment which will distill, crack, fractionate and treat into finished products approximately 3,000 barrels of crude oil per day. This as compared with equipment necessary and space required a few years ago will illustrate the enormous strides made in the distillation of crude oil.

While the above covers briefly the distillation of crude oil for recovery of lighter products only similar strides have been and are being made in the distillation of crude oil for production of lubricating oils, and while the pipe still and fractionating equipment are more or less the same, vacuum is applied as against pressure for production of the lighter ends. While there has been considerable development of continuous vacuum distillation for lubricating oils, this has not been as complete as for lighter ends, and while continuous operation is now successful with some crudes, there is no doubt in my mind that this will very quickly be developed for practical use with all grades of crude oil.

Filter Operations Offer Big Chance for Saving

By J. B. Northrop*

DECOLORIZING of lubricating oils throughout the Pennsylvania refining district involves expenditures of an enormous sum of money, probably exceeding one third of the entire manufacturing cost of those plants decolorizing the larger proportion of their lubricating oils. Naphtha, steam, labor, investments, depreciation, insurance and losses, all enter into the cost of the finished product.

Loss, in the judgment of the writer, is the largest single factor charged against the final cost per gallon. These losses are not all vapor losses of naphtha used in cleansing the clay, considerable quantities of the oil being burned up in the kiln from improperly washed and steamed clay. Still other losses occur in reclaiming filter washes or bright stock from the centrifuging or settling department.

To prevent these losses every means that could possibly be devised should be utilized. Decolorizing stock in solutions of gasoline for cold settling or centrifuging should be done only in gas tight equipment providing each filter with look boxes so that the operator may determine at a glance just what is taking place at all times.

If a gas recovery system is a part of your equipment, by all means connect up to these tanks. All vapors blown from filters when steamed should be carefully condensed before liberating to the air to prevent as much as possible losses from this source and to determine how efficiently the cleansing of your clay is being done, taking an occasional sample of the average of the entire filter to your laboratory.

Place six to eight ounces of the clay in an A. S. T. M. distillate flask, in turn connecting this up to your regular A. S. T. M. condenser, heating the clay gradually to distill off any naphtha or oil that may remain in it, basing this back on the number of tons of clay contained in the filter.

I am sure that a poorly washed and steamed filter or those classified as dirty, giving off black smoke when being restored, will give you something to think about. Such a filter often runs from 20 to 40 gallons of oil per ton of clay, or more than sufficient to offset any profits you might hope to have from that particular filter.

In addition to the losses, the efficiency of the clay will be seriously affected by the carbon which forms in burning up the oil in the kilns. One or two companies manufacturing special kilns today will, by introducing this in the clay bed while it is still hot, remove this carbon and restore the clay to approximately its original efficiency but not with the degree of ease and speed that they can restore cleanly washed clay.

The simplest method that has ever come to the attention of the writer for determining the efficiency of old clay as compared to the new is as follows: Select a small sample, 8 to 10 ounces of new clay which is giving satisfactory results, grinding or pulverizing this until it will all pass through a 100-mesh screen. Follow the same procedure with the sample of the old clay of which you are desirous of determining the efficiency in relation to the new.

Fill two small glass vessels with exactly the same amount of oil of the same grade, preferably 200 neutral unfiltered, using not too large a sample (never to exceed a pint). Note carefully the color of the original sample, placing in each container the exact amount of clay both old and new by weight, heat to 150 temperature and maintain for 20 minutes, constantly agitating, strain through filter paper, taking the color cuts made by each clay. Figuring this back against your original sample, will give you consistent results which cannot be obtained by any other method known to the writer.

Just what loss of efficiency should determine the number of times clay can economically be restored is a matter for each individual plant to decide. It depends a great deal on the material and on the color desired, as well as the grade and color of the crude from which the material is made.

The darker crudes produce proportionally a smaller yield of a given color naturally than will the lighter grades. I, therefore, know of no set rule that can be devised for an average yield per ton of clay adaptable to all plants.

There are many methods in practical operation for soaking and running filters ranging all the way from filtering under pressure up to 20 pounds per square inch to pumping the oil upward through the bed of clay. Most of these give good results in the particular plants in which they have been perfected.

Pressure up to 20 pounds for filtering lubricating oils of a viscous nature, no doubt, are justifiable if for no other reason than the saving of time that can be accomplished both in soaking and running by maintaining a back pressure on the bottom of the filter. Channeling will be prevented by this means, with its loss of production.

The writer is personally in favor of filtering all oils that possibly can be economically, in solutions with as high as 50 to 60 per cent of naphtha. Much greater speed can be obtained in running time as well as draining, less naphtha is consumed to thoroughly cleanse the clay and the yield is almost double that obtained on straight 600 stock, enabling you to shorten your recycling period per filter 24 to 48 hours.

Due consideration should be given the contact decolorizing of lubricating oils in at least all new installations of any size. This method has been so perfected at the present time that its cost will compare very favorably with the percolation type or filter even though no attempt is made to restore the powdered clay at all.

*Manager, Ohio Valley Refining Co., St. Mary's, W. Va.

Accounting Methods for Refineries

Article Seven

Factors Necessary in Keeping Operating Reports and Cost Records for Stills

By Henry W. Ralph

THE data which is important in operating stills is dependent on the type of still, on the type of instruments available for developing control data, and the limits of flexibility of the still itself.

The objective to be reached in the operation of stills may be briefly stated:

To produce products with highest possible total value—which usually means the maximum yields of the light cuts.

To keep the thruput as high as possible consistent with the above.

To operate at the lowest possible cost.

This objective is the same whether the still is of the batch type or the continuous type; whether it operates at a vacuum, atmospheric pressure or high pressure.

To accomplish the first object it is necessary that the best type of still be used for the particular material which is to be broken down by distillation.

In general, the distillation of crude is performed at normal pressure in batch stills, pipe stills or continuous type stills; the distillation of gas oil and other heavy ends is carried on by cracking; and the distillation of pressed distillate is carried on by steam stills, although the use of the vacuum still is steadily increasing in this field.

The kind of data which is valuable for operating purposes, as previously stated, is somewhat dependent on the type of still employed. For the batch type still it is important to know just how much time is consumed in each part of the complete operation, as time lost in any stage results in a reduction of the possible thruput and a consequent increase in the cost. For the continuous type still it is important to know the hourly rate of thruput, so that there will be no decrease in the rate with a consequent increase in cost.

In any distillation it is necessary that the temperature be held within certain ranges for periods of sufficient length to compel as complete vaporization as is practical between those ranges. In the laboratory, because of the small quantities handled, there is available an excess of heat, adequate facilities for cooling and means for mechanical agitation.

In actual refining it is neither practical nor desirable to provide corresponding equipment; but there is a point up to which it is economical to provide recording instruments for control purposes and equipment for flexibility in operation; and beyond which point the cost of such apparatus is not compensated for by increased value of production.

Fuel constitutes one of the chief elements of refining cost—running generally about a third. The cost of fuel tends to rise from year to year even though the general trend is subject to variations from time to time. Narrowing spreads between raw material and finished products require less costly manufacturing and the most obvious source for saving is the better utilization of fuel—first to develop better combustion, secondly, to extract more of the heat actually produced before the gases pass out of the chimney and, thirdly, to utilize the heat already extracted to preheat incoming stock through the use of heat interchanging apparatus.

A typical batch still report will show in addition to the Run No.—and the date, the following information which has to do chiefly with the utilization of the still as a piece of apparatus that should be kept busy: Time—started to charge, fired, finished charging, still gauge, over, slop, gum, coked off, started to pump out, finished pumping out, steamed out, opened, cleaned, inspected, ready to charge, idle time, out for repair.

From the standpoint of operation it is of course necessary to know the kind of stock charged, quantity and the tanks from which it is drawn. Gravity and temperature when charged are also recorded.

Beyond that, it will be necessary to record the time of changing from one run-down tank to another; the gravity of the stream and the temperature at periodic intervals; also the measurements in run-down tanks, so that production of various products can be calculated.

Should there be several streams running at once it will be necessary to differentiate the streams by assigning outlets designating numbers, recording the gravity and temperature of each stream during the time it flows.

Continuous Type Still

A typical report for a continuous type still will show much more information than a batch still report. The process is essentially one of dealing at particular points with a moving stream of oil.

The capacity of pipe stills is relatively large; and the original design is of primary importance in the task of creating the conditions which will be most suitable for the handling of the oil at any stage of the distillation. Heat interchange plays a large part in the economy of the modern pipe still. This is largely automatic and satisfactory results in this also are dependent on the skill with which the original design was made. In passing, it might be commented on that it is not unusual to obtain yields in pipe stills even better than those obtained in the laboratory.

At control points in continuous type stills instruments will be provided to record conditions of temperature, pressure and thruput; and the apparatus necessary to so vary conditions that the stream of oil may encounter at all times in its progress thru the still that combination of temperature and pressure which will give most satisfactory yields.

Thruput and Yields

From the standpoint of maximum thruput it is important to know currently the rate at which the charging stock is being supplied to the still. This is immediately available if meter readings or pump counters are used, and can be obtained if tank gauges constitute the only information available.

From the standpoint of maximum yields it is important to know the amount of various products made from definite quantities of charging stock.

In general the various charging stocks are called by name and identified further by a statement of the tanks from which they came. Also, the gravity is determined at the time when it is being charged, and the temperature. Hourly records are made of these. The various products obtained are measured either by meters or in run-down tanks and a record made of the specific gravity and temperature at regular intervals.

Pressures

There will be a considerable variation in the number of points for which pressure shall be recorded, depending on type of still. One crack-

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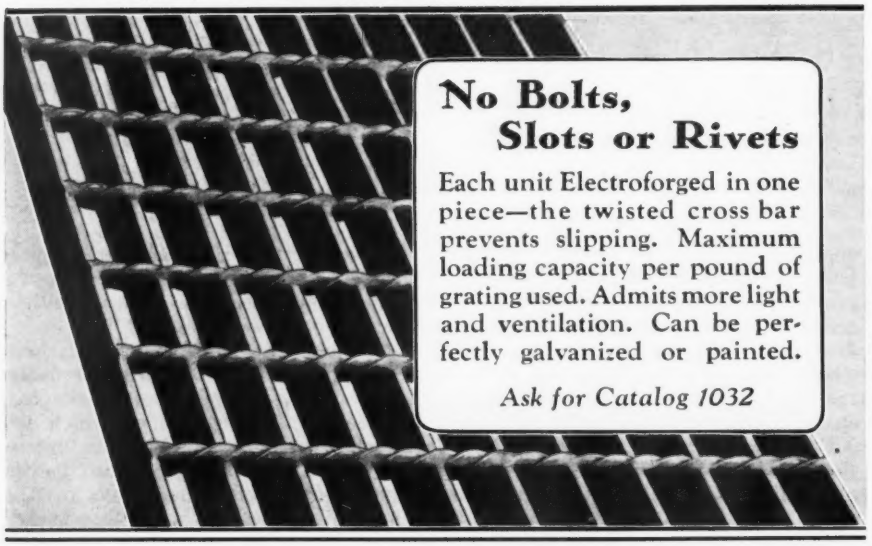

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ing unit provides for readings of steam pressure; oil pressure at pump; and at reaction chamber; and gas pressure. Another unit shows only "Operating Pressure." For a pipe still it is usual to measure pressure at crude pump, at charging pump, at evaporator, at vapor separator and at tar pump.

Temperatures

For determining a measure of combustion and the utilization of this heat, three points are particularly useful: The point at which actual combustion is taking place, the flues leading to the chimney and the point at which gases emerge from the chimney.

A record of carbon dioxide emerging as such will be found helpful as a guide in determining whether combustion is as complete as it should be.

Temperatures of the oil during its travel through the still are significant and instruments were set up in a recent installation to show temperature readings at the following points: oil inlet, oil transfer, hot oil, reboiler outlet, evaporator bottom, evaporator top, bubble tower bottom, bubble tower top, vapor separator bottom, vapor separator top.

Fuel Consumption—Steam Consumption

As pointed out in preceding paragraphs, a knowledge of fuel consumed is very important because of the relatively high percentage of fuel cost to other items of manufacturing cost. It is necessary to make such records as will enable the responsible individual to know each day how much fuel oil, or an equivalent such as coal, is being used. It is usual practice to reduce this to a percentage of the crude oil consumed; and, if coal is used, to reduce it to a similar basis by a calculation of B.t.u.

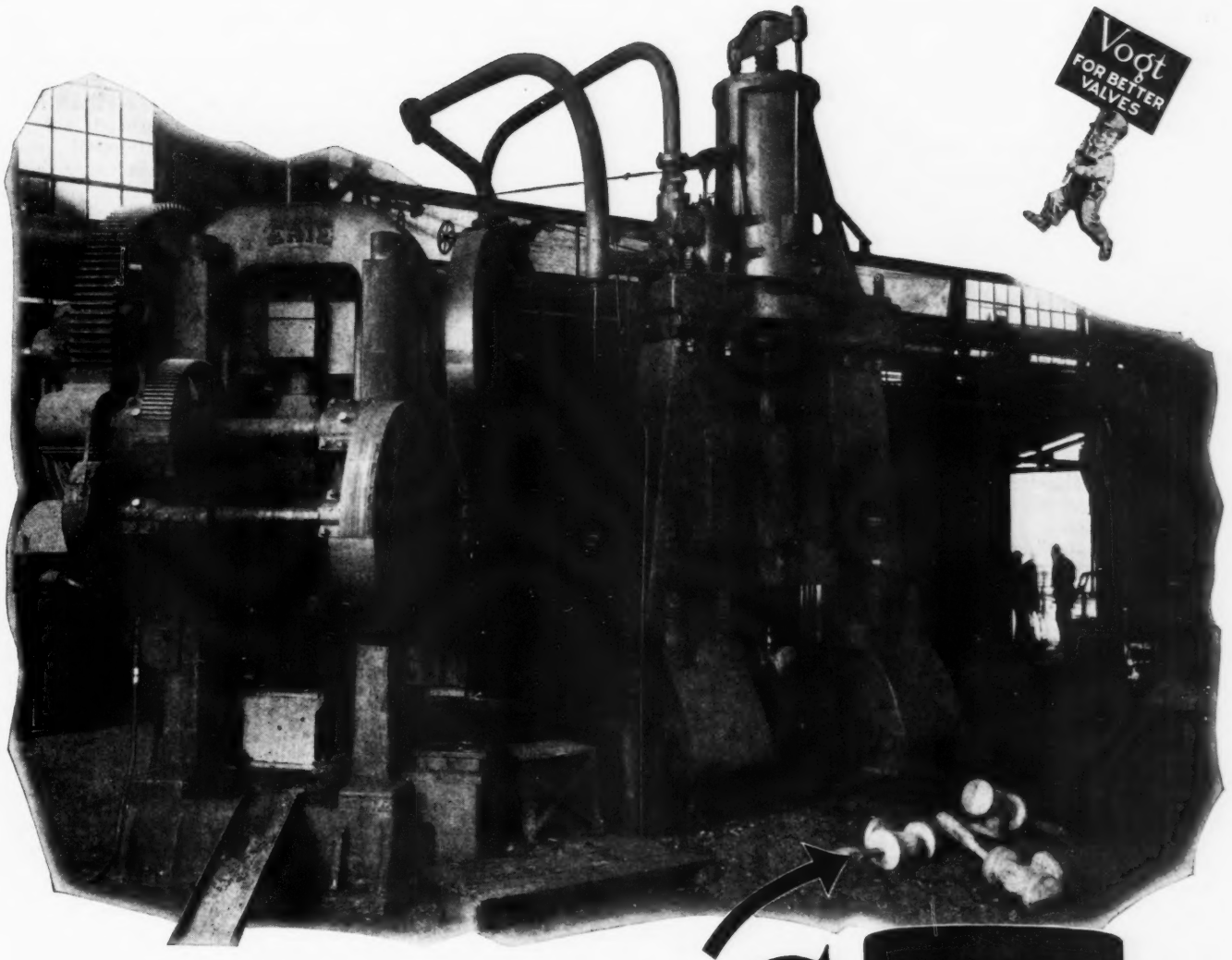
Steam consumption should be measured by meters so that a simple relation between crude distilled and the steam consumed can be developed—such as pounds of steam per barrel of crude refined.

Laboratory Tests

During the running of the still it is good practice to run laboratory tests on the products as they come through. Such tests will show, for gasoline, initial boiling point, final boiling point, temperature at which first 5 per cent comes over, temperature when 95 per cent is over and either the per cent over at various arbitrary temperatures or the temperature at which arbitrary percentages are over, and such data on other products as is pertinent.

Cost Records

The cost records which should be maintained in connection with still operations are relatively few but there are certain factors which require clear thinking and careful handling in relation to the distribution



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of costs other than direct labor and supplies used for operation and maintenance.

In the refinery, as in other manufacturing plants, the total costs and the cost per unit will vary with the fluctuation in volume because of the fact that some expenses, such as direct productive labor and materials, vary directly with the volume; some, such as depreciation, taxes, principal administrative salaries, etc., are practically fixed—are not variable according to volume. Between these two are other groups that vary with volume, but not in direct proportion to the volume. For expenses in the last category there is usually a practical minimum and a probable maximum and it is possible to determine standard or normal relationships, which will closely approximate the facts when the volume varies between certain ranges.

In the following discussion more space has been given to the variable and partially variable expenses since these are the most important from the operating standpoint.

Variable Expenses

Labor and Supplies

The method of making the most valuable breakdown of information covering expense of labor, etc., will be dependent on the particular organization, the method of remuneration, the responsibility for repairs and for extra labor. It will be found necessary for all organizations to distinguish in their expenditures for labor and for supplies and materials between operating and repairs. It will be well to make a further distinction between repairs to buildings and repairs to equipment.

These totals must be developed for accounting purposes but the significant fact as viewed from the standpoint of improving operation is the relative ratio of these expenses to the thruput. As was outlined in the discussion of labor control, the setup of facts which is consistent with the thought processes of the responsible individual will aid in improvement in cooperation—such facts as size of regular gang, number of extra laborers engaged in various activities, and similar facts for comparative periods.

Fuel

The quantities used and the cost must be developed for accounting purposes—but the significant fact from the standpoint of operation is not the absolute money cost but the relation of the utilization of the total potential heat in the fuel which was consumed to the thruput.

Steam

Total cost includes all items chargeable to the boiler plants and steam supply lines. If steam meters are in use, it is possible to present definite facts covering the total steam used and develop the rate of steam consumption to the thruput. The use of meters will also permit satisfactory distribution of the total cost of steam to the various units. When, however, meters are not used, it is necessary in working for betterment (as has been stated previously in this series of articles) to depend on such facts as can be assembled concerning the cost of steam; and on the development in the entire organization of a knowledge of the importance of the cost of steam and its utilization to the best advantage.

Power, Water, Compressed Air, Pumping, Laboratory

Charges for power, water, compressed air cover both the plants for these purposes and the distribution system. When meters are used distribution can be made on the basis of meter readings; otherwise it should be based on engineering tests, theoretical calculations or the estimate of the best qualified man in the organization—these stated in the order of choice.

Charges for pumping include items chargeable to the pump houses, and pipe lines; and the distribution should be based on the pumping done for various operating units.

Laboratory service should be separated according to time required for various types of tests and the number of the various kinds run. Experimental or research work should be segregated and distributed as a portion of manufacturing department general expense.

Partially Variable Expenses

Refinery overhead—Superintendent's salary and expenses, office expense, fire protection, hospital, miscellaneous shops and buildings, tracks, roads, telephone and telegraph, etc.

These should be distributed to the productive divisions of the plant on the basis of output. A better method of distributing these might be to approximate facts by applying a variability factor calculated on the basis of previous experience. In times of low volume this will build up direct charges against profits and, in times of high volume, credits to profits. Until facts are available to enable a routine of this kind to be handled with ease it is better to distribute the entire overhead each month and develop the most significant ratios of such expenses to the output.

Fixed Expenses

Depreciation

Depreciation applicable to individual productive units or to service units should be charged directly to those units, but this should be done through the development of a standard rate for normal volume.

If P and L results are developed for stills and other processing units it will be in order to charge such units with the monthly amount of depreciation, and the result of low and high volume will be directly reflected in earnings. For general purposes of cost calculations and valuing inventories, it is well to use standard rates of burden and thus avoid the distortion which results from spreading a fixed overhead over a fluctuating volume. Standard practice for the petroleum industry, however, is to spread the fixed charges over the monthly output.

Depreciation not charged to separate productive units shall be included with refinery overhead and similarly allocated.

General office overhead, provident fund and taxes, if distributed to stills can be charged at a standard burden rate, although general practice in the petroleum industry is the same as for refinery overhead. If the company P and L is fully departmentalized it can be spread on the basis of capital employed.

New Equipment

Hastorf, Lord, Inc., Portland, Ore., has been appointed distributor for western Oregon by the S. T. Johnson Co., Oakland, Cal., manufacturer of oil burners, oil pumping and preheating equipment.

In addition to the rotary burners with either manual or automatic control providing a range of from 250 to 27,800 square feet of steam radiation or the equivalent, the Johnson company sells whirlwind, natural draft, steam atomizing and low pressure air oil burners, also electric or steam-driven oil pumping and preheating equipment.

* * *

Foster Wheeler Corp., 165 Broadway, New York, power plant and oil refinery equipment manufacturers, has off the press catalog No. 304 devoted exclusively to superheaters. The catalog consists of illustrations of notable superheater installations. The history of Foster superheaters is reviewed in which their application to many types of boilers, including longitudinal drum, cross drum, bent tube and return tubular, is explained. A steam table up to 1500 pounds absolute pressure and 300 degrees superheat, concludes the catalog.

* * *

Tire Pop-Valve Sales Co., Pontiac, Mich., has placed on the market the Tire Pop-Valve for purchase by motorists for the accurate inflation of tires. When the tire needs inflating the air hose is applied as usual and when the designated pressure is reached, the valve "signals," after which no more air can pass into the tire. The valves are sold in sets of four and screw onto the valve stems to be left on the tire until the tire is worn out.

From an article by C. O. Willson in
The Oil and Gas Journal, July 19, 1928

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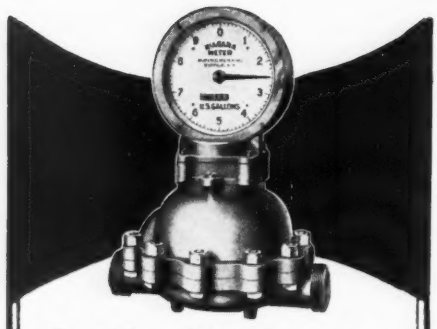

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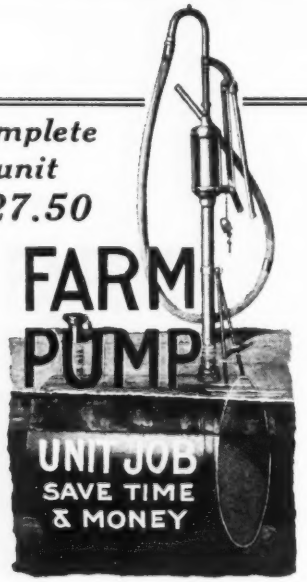

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How to Correct Oil Gravity and Volume For Temperature Changes

Part 2

CLEVELAND, Sept. 13.

HAVING worked out and published in Circular 154 accurate and comprehensive tables for correction of gravity and volume of oils for temperature changes, as described last week,* the Bureau of Standards and the oil industry representatives realized that such voluminous tables and such accurate results as they would give were not needed in the general rough and ready shipping, receiving, and distributing of petroleum products and that a simpler and more easily applied system of making corrections

*NATIONAL PETROLEUM NEWS, Sept. 5, page 110.

Volume at 60° F. occupied by unit volume at indicated temperatures

Observed temperature in ° F.	Group I up to 34.9 degrees A. P. I. at 60 ° F.	Group II 35 to 50.9 degrees A. P. I. at 60 ° F.	Group III 51 to 63.9 degrees A. P. I. at 60 ° F.	Group IV 64 to 78.9 degrees A. P. I. at 60 ° F.	Group V 79 to 88.9 degrees A. P. I. at 60 ° F.	Group VI 89 and higher degrees A. P. I. at 60 ° F.
0	1.0242	1.0297	1.0361	1.0419	1.0476	1.0501
1	1.0238	1.0292	1.0355	1.0412	1.0468	1.0493
2	1.0234	1.0287	1.0349	1.0405	1.0460	1.0484
3	1.0230	1.0283	1.0343	1.0398	1.0453	1.0476
4	1.0226	1.0278	1.0337	1.0391	1.0445	1.0467
5	1.0222	1.0273	1.0331	1.0384	1.0437	1.0459
6	1.0218	1.0268	1.0325	1.0377	1.0429	1.0451
7	1.0214	1.0263	1.0319	1.0370	1.0421	1.0443
8	1.0210	1.0258	1.0313	1.0364	1.0414	1.0434
9	1.0206	1.0253	1.0307	1.0357	1.0406	1.0426
10	1.0202	1.0248	1.0301	1.0350	1.0398	1.0418
11	1.0198	1.0243	1.0295	1.0343	1.0390	1.0410
12	1.0194	1.0238	1.0289	1.0336	1.0382	1.0402
13	1.0189	1.0233	1.0283	1.0329	1.0375	1.0393
14	1.0185	1.0228	1.0277	1.0322	1.0367	1.0385
15	1.0181	1.0223	1.0271	1.0315	1.0359	1.0377
16	1.0177	1.0218	1.0265	1.0308	1.0351	1.0369
17	1.0173	1.0213	1.0259	1.0301	1.0343	1.0360
18	1.0169	1.0208	1.0253	1.0294	1.0335	1.0352
19	1.0165	1.0203	1.0247	1.0287	1.0327	1.0343
20	1.0161	1.0198	1.0241	1.0280	1.0319	1.0335
21	1.0157	1 0193	1.0235	1.0273	1.0311	1.0327
22	1.0153	1.0188	1.0229	1.0266	1.0303	1.0319
23	1.0148	1.0184	1.0223	1.0260	1.0296	1.0310
24	1.0144	1.0179	1.0217	1.0253	1.0288	1.0302
25	1.0140	1.0174	1.0211	1.0246	1.0280	1.0294
26	1.0136	1.0169	1.0205	1.0239	1.0272	1.0286
27	1.0132	1.0164	1.0199	1.0232	1.0264	1.0277
28	1.0128	1.0159	1.0193	1.0225	1.0256	1.0269
29	1.0124	1.0154	1.0187	1.0218	1.0248	1.0260
30	1.0120	1.0149	1.0181	1.0211	1.0240	1.0252
31	1.0116	1.0144	1.0175	1.0204	1.0232	1.0244
32	1.0112	1.0139	1.0169	1.0197	1.0224	1.0236
33	1.0108	1.0134	1.0163	1.0190	1.0216	1.0227
34	1.0104	1.0129	1.0157	1.0183	1.0208	1.0219
35	1.0100	1.0124	1.0151	1.0176	1.0200	1.0211
36	1.0096	1.0119	1.0145	1.0169	1.0192	1.0203
37	1.0092	1.0114	1.0139	1.0162	1.0184	1.0194
38	1.0088	1.0109	1.0133	1.0155	1.0176	1.0186
39	1.0084	1.0104	1.0127	1.0148	1.0168	1.0177
40	1.0080	1.0099	1.0121	1.0141	1.0160	1.0169
41	1.0076	1.0094	1.0115	1.0134	1.0152	1.0160
42	1.0072	1.0089	1.0109	1.0127	1.0144	1.0152
43	1.0068	1.0084	1.0103	1.0120	1.0136	1.0143
44	1.0064	1.0079	1.0097	1.0113	1.0128	1.0135
45	1.0060	1.0074	1.0091	1.0106	1.0120	1.0126
46	1.0056	1.0069	1.0085	1.0099	1.0112	1.0118
47	1.0052	1.0064	1.0079	1.0092	1.0104	1.0110
48	1.0048	1.0059	1.0072	1.0084	1.0096	1.0101
49	1.0044	1.0054	1.0066	1.0077	1.0088	1.0093
50	1.0040	1.0049	1.0060	1.0070	1.0080	1.0084
51	1.0036	1.0044	1.0054	1.0063	1.0072	1.0076
52	1.0032	1.0039	1.0048	1.0056	1.0064	1.0067
53	1.0028	1.0035	1.0042	1.0049	1.0056	1.0059
54	1.0024	1.0030	1.0036	1.0042	1.0048	1.0050
55	1.0020	1.0025	1.0030	1.0035	1.0040	1.0042
56	1.0016	1.0020	1.0024	1.0028	1.0032	1.0034
57	1.0012	1.0015	1.0018	1.0021	1.0024	1.0025
58	1.0008	1.0010	1.0012	1.0014	1.0016	1.0017
59	1.0004	1.0005	1.0006	1.0007	1.0008	1.0008
60	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
61	.9996	.9995	.9994	.9993	.9992	.9992
62	.9992	.9990	.9988	.9986	.9984	.9983
63	.9988	.9985	.9982	.9979	.9976	.9975
64	.9984	.9980	.9976	.9972	.9968	.9966

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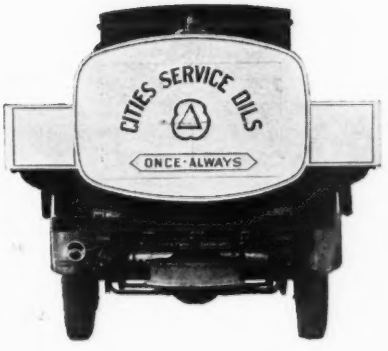

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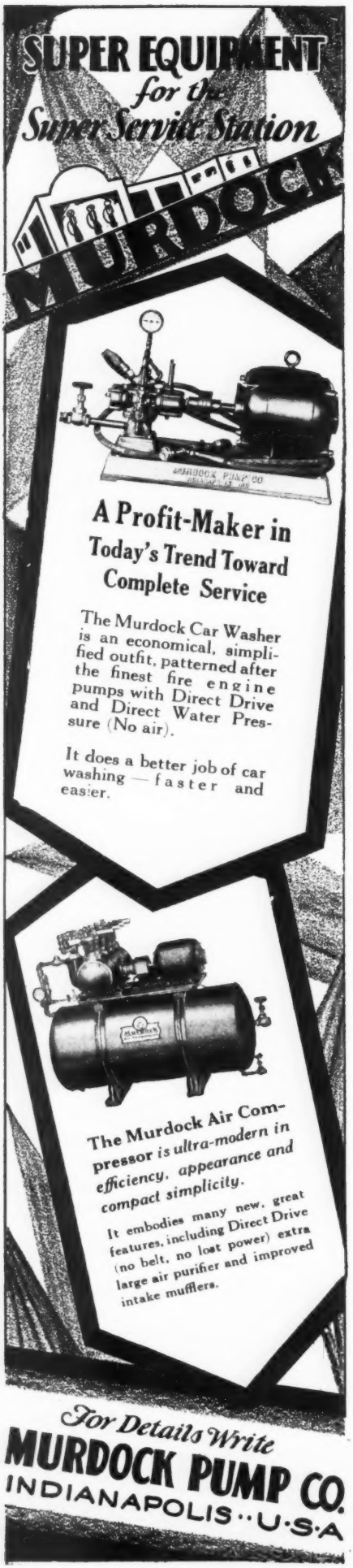
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was desirable. The Bureau, in collaboration with the American Petroleum Institute and the American Society for Testing Materials, set about to work out such a simple system. The result was the "Abridged Volume Correction Table for Petroleum Oils," issued as a supplement to Circular 154.

Instead of working out the coefficient of expansion for each degree of gravity, as in the complete tables, of Circular 154, oils were divided in the abridged table into 6 groups, Group I embraced oils up to 34.9 A.P.I. gravity at 60 degrees F., Group II, 35 to 50.9 gravity, Group III, 51 to 63.9 gravity, Group IV, 64 to 78.9 gravity, Group V, 79 to 88.9 gravity and Group VI, 89 gravity and higher. The table showing the six groups with their coefficients of expansion follows:

Group No.	Coefficient of expansion at 60 F.	Corresponding degrees A. P. I.	Range of group (deg. A. P. I. at 60 F.)
I	0.0004	22	Up to 34.9
II	0.0005	44	35 to 50.9
III	0.0006	58	51 to 63.9
IV	0.0007	72	64 to 78.9
V	0.0008	86	79 to 88.9
VI	0.00085	91	89 and higher

The purpose of the abridged table, when it should be used and when it should not, is explained in the supplement as follows:

"The abridged table has been pre-

Observed temperature in ° F.	Volume at 60° F. occupied by unit volume at indicated temperatures: Group I up to 34.9 degrees A. P. I. at 60° F.	Group II 35 to 50.9 degrees A. P. I. at 60° F.	Group III 51 to 63.9 degrees A. P. I. at 60° F.	Group IV 64 to 78.9 degrees A. P. I. at 60° F.	Group V 79 to 88.9 degrees A. P. I. at 60°F.	Group VI 89 and higher degrees A. P. I. at 60° F.	Observed temperature in ° F.	Volume at 60° F. occupied by unit volume at indicated temperatures: Group I up to 34.9 degrees A. P. I. at 60° F.	Group II 35 to 50.9 degrees A. P. I. at 60° F.
65	0.9980	0.9975	0.9970	0.9965	0.9960	0.9958	130	0.9724	0.9652
66	.9976	.9970	.9964	.9958	.9952	.9949	131	.9720	.9647
67	.9972	.9965	.9957	.9951	.9944	.9941	132	.9716	.9642
68	.9968	.9961	.9951	.9943	.9935	.9932	133	.9713	.9637
69	.9964	.9956	.9945	.9936	.9927	.9924	134	.9709	.9632
70	.9960	.9951	.9939	.9929	.9919	.9915	135	.9705	.9627
71	.9956	.9946	.9933	.9922	.9911	.9907	136	.9701	.9622
72	.9952	.9941	.9927	.9915	.9903	.9898	137	.9697	.9617
73	.9948	.9935	.9921	.9908	.9895	.9890	138	.9694	.9613
74	.9944	.9930	.9915	.9901	.9887	.9881	139	.9690	.9608
75	.9940	.9925	.9909	.9894	.9879	.9873	140	.9686	.9603
76	.9936	.9920	.9903	.9887	.9871	.9864	141	.9682	.9598
77	.9932	.9915	.9897	.9880	.9863	.9856	142	.9678	.9593
78	.9929	.9911	.9891	.9872	.9854	.9847	143	.9675	.9588
79	.9925	.9906	.9885	.9865	.9846	.9839	144	.9671	.9583
80	.9921	.9901	.9879	.9858	.9838	.9830	145	.9667	.9578
81	.9917	.9896	.9873	.9851	.9830	.9821	146	.9663	.9573
82	.9913	.9891	.9867	.9844	.9822	.9813	147	.9659	.9568
83	.9909	.9886	.9860	.9837	.9814	.9804	148	.9655	.9563
84	.9905	.9881	.9854	.9830	.9806	.9796	149	.9651	.9558
85	.9901	.9876	.9848	.9823	.9798	.9787	150	.9647	.9553
86	.9897	.9871	.9842	.9816	.9790	.9779	151	.9643	.....
87	.9893	.9866	.9836	.9809	.9782	.9770	152	.9639	.....
88	.9889	.9861	.9830	.9802	.9773	.9762	153	.9636	.....
89	.9885	.9856	.9824	.9795	.9765	.9753	154	.9632	.....
90	.9881	.9851	.9818	.9788	.9757	.9745	155	.9628	.....
91	.9877	.9846	.9812	.....	.....	.....	156	.9624	.....
92	.9873	.9841	.9806	.....	.....	.....	157	.9620	.....
93	.9869	.9836	.9800	.....	.....	.....	158	.9616	.....
94	.9865	.9831	.9794	.....	.....	.....	159	.9612	.....
95	.9861	.9826	.9788	.....	.....	.....	160	.9608	.....
96	.9857	.9821	.9782	.....	.....	.....	161	.9604	.....
97	.9853	.9816	.9776	.....	.....	.....	162	.9601	.....
98	.9849	.9812	.9769	.....	.....	.....	163	.9597	.....
99	.9845	.9807	.9763	.....	.....	.....	164	.9594	.....
100	.9841	.9802	.9757	.....	.....	.....	165	.9590	.....
101	.9837	.9797	.9751	.....	.....	.....	166	.9586	.....
102	.9833	.9792	.9745	.....	.....	.....	167	.9582	.....
103	.9830	.9786	.9738	.....	.....	.....	168	.9578	.....
104	.9826	.9781	.9732	.....	.....	.....	169	.9574	.....
105	.9822	.9776	.9726	.....	.....	.....	170	.9570	.....
106	.9818	.9771	.9720	.....	.....	.....	171	.9566	.....
107	.9814	.9766	.9714	.....	.....	.....	172	.9562	.....
108	.9811	.9762	.9708	.....	.....	.....	173	.9559	.....
109	.9807	.9757	.9702	.....	.....	.....	174	.9555	.....
110	.9803	.9752	.9696	.....	.....	.....	175	.9551	.....
111	.9799	.9747	.9690	.....	.....	.....	176	.9547	.....
112	.9795	.9742	.9684	.....	.....	.....	177	.9543	.....
113	.9791	.9737	.9678	.....	.....	.....	178	.9540	.....
114	.9787	.9732	.9672	.....	.....	.....	179	.9536	.....
115	.9783	.9727	.9666	.....	.....	.....	180	.9532	.....
116	.9778	.9722	.9660	.....	.....	.....	181	.9528	.....
117	.9775	.9717	.9654	.....	.....	.....	182	.9524	.....
118	.9771	.9712	.9647	.....	.....	.....	183	.9521	.....
119	.9767	.9707	.9641	.....	.....	.....	184	.9517	.....
120	.9763	.9702	.9635	.....	.....	.....	185	.9513	.....
121	.9759	.9697	.9629	.....	.....	.....	186	.9509	.....
122	.9755	.9692	.9623	.....	.....	.....	187	.9505	.....
123	.9752	.9687	.9617	.....	.....	.....	188	.9502	.....
124	.9748	.9682	.9611	.....	.....	.....	189	.9498	.....
125	.9744	.9677	.9605	.....	.....	.....	190	.9494	.....
126	.9740	.9672	.....	.....	.....	.....	191	.9490	.....
127	.9736	.9667	.....	.....	.....	.....	192	.9487	.....
128	.9732	.9662	.....	.....	.....	.....	193	.9483	.....
129	.9728	.9657	.....	.....	.....	.....	194	.9480	.....
							195	.9476	.....

GROUP I (Extended)

Observed temperature in ° F.	Volume at 60° F. occupied by unit volume at indicated temperatures	Observed temperature in ° F.	Volume at 60° F. occupied by unit volume at indicated temperatures	Observed temperature in ° F.	Volume at 60° F. occupied by unit volume at indicated temperatures
195	0.9476	215	0.9401	235	0.9326
196	.9472	216	.9397	236	.9322
197	.9468	217	.9393	237	.9318
198	.9465	218	.9390	238	.9315
199	.9461	219	.9386	239	.9311
200	.9457	220	.9382	240	.9307
201	.9453	221	.9378	241	.9303
202	.9449	222	.9374	242	.9300
203	.9446	223	.9371	243	.9296
204	.9442	224	.9367	244	.9293
205	.9438	225	.9363	245	.9289
206	.9434	226	.9359	246	.9285
207	.9430	227	.9356	247	.9281
208	.9427	228	.9352	248	.9278
209	.9423	229	.9349	249	.9274
				250	.9270
210	.9419	230	.9345		
211	.9415	231	.9341		
212	.9412	232	.9337		
213	.9408	233	.9334		
214	.9405	234	.9330		

NOTE.—The above extension to the foregoing abridged table is based on the same data as Table 2, Circular No. 154. For temperatures above 203° F. the tabulated values of the volume at 60° F. are extrapolated from the experimental results obtained over the temperature range 32 to 203° F.

pared to meet a demand from the oil industry for a short and convenient table for reducing oil volumes to the basis of 60 degrees F. when extreme accuracy is not required.

"It is not intended to replace the more complete and accurate volume correction table contained in Circular 154 but rather to supplement it and especially to replace the various abridged tables and approximate correction factors heretofore employed in the oil industry.

"In case higher accuracy is essential the complete table contained in Circular 154 should be used, especially if large volumes or wide temperature ranges are involved. To avoid possible confusion, all contracts should state which table is to be used.

"The abridged table is based on the same data as Table 2, Circular 154."

The method of using the abridged table is explained as follows:

"This table shows the volume occupied at 60 degrees F. by a quantity of oil occupying unit volume at the indicated temperatures. For example, if at 60 degrees F. the degrees A.P.I. of the oil is 28 (Group I), one gallon of this oil measured at 120 degrees F. will have a volume of 0.9763 gallon at 60 degrees F. The values given in the table are in the form of multipliers; that is, the volume of the oil at the indicated temperature and degrees A.P.I. for each group, multiplied by the corresponding factor in the table, equals the volume at 60 degrees F.

"For example, if the degrees A.P.I. of an oil at 60 degrees F. equals 28 and the volume at 120 degrees F. equals 6000 gallons, then the volume at 60 degrees F. equals 6000 times 0.9763 or 5,857.8 gallons."

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Atlantic City, N. J.—Sinclair Refining Co., filling station.
Bellaire, O.—William Phillips Jr., filling station.
Lexington, Ky.—Florence Garey and Elizabeth Colbert, filling station.
Dayton, O.—Cass Development Co., filling station.
Portsmouth, O.—Red Cap Service Co., filling station.
Carmi, Ill.—Diamond Oil Co., filling station.
Toledo, O.—Paragon Refining Co., filling station.
Yanush, Okla.—W. L. Emmert, filling station.
Ravenna, O.—Howard Young, filling station.
Hartford City, Ind.—William Glancy, filling station.
Springfield, Mo.—Cities Service Oil Co., filling station.
Athens, O.—Will H. Clark, filling station.
Hastings, Neb.—Continental Oil Co., filling station.
Dayton, O.—Clifford W. Askin, filling station.
Mt. Pleasant, Ia.—I. L. Moore, service station.
Ames, Ia.—A. J. Boyd, filling station.
Ames, Ia.—Joe Whatoff, filling station.
Ames, Ia.—Ames Storage Battery Co., filling station.
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Paxton, Neb.—H. L. Stoll, service station.
Grand Forks, N. D.—A. J. Zeman, filling station.
Murdock, Minn.—Bartles Scott Oil Co., filling station.
Minneapolis, Minn.—K. T. Wiedeman, filling station.
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Lisco, Neb.—Richard Almberg, service station.
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Richmond, Va.—Morgan Oil & Supply Co., filling station.
Nebraska City, Neb.—Guy A. Crook, filling station.
Laddonia, Mo.—Illinois Independent Oil Co., filling station.
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Indianapolis, Ind.—Roxana Petroleum Co., filling station.
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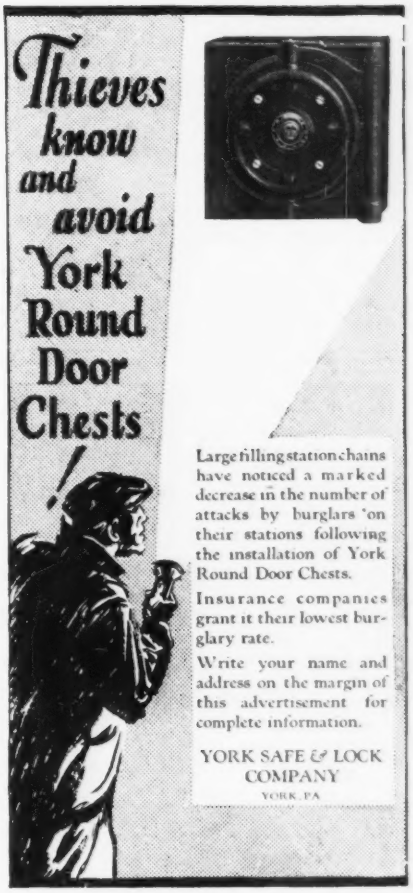
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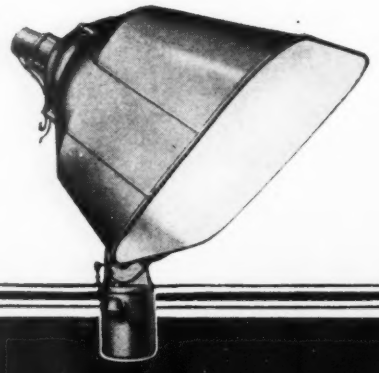

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Points to Consider on Marginal Contracts

By Warren C. Platt, Editor

THE present narrow jobber's margin and the heavy discounts off the tank wagon price which have been in effect most of the summer, have brought to the serious consideration of the oil industry as never before, the character and value and justice of the so-called marginal type of contract between refiner and jobber.

The refiners long since had some of its disadvantages demonstrated to them and now the jobbers are facing the same unpleasant truths.

The chief trouble with marginal contracts, and most other forms of contracts that have been in effect to-date, is that they have sought to carry out the impossible. To the refiner they have sought to give "his profitable share" of the published tank wagon markets, and to the jobber these contracts have sought to afford a "minimum profitable guarantee." There was just too much millennium sought for in such contracts and all of them were hitched up to an utter disregard of human nature.

In the first place no one can have any assurance that the tank wagon price of the dominating Standard company in a territory will always be profitable. It must be profitable over its territory over any great period of time, but at some given point in the territory it may not be profitable, due to local price conditions. Such has often been the case.

Second, it may so happen that the Standard's costs of doing business may at times be less, in refining and marketing, than the Independents, in which event a division of what may be a profitable price to the Standard may be two unprofitable prices for Independent refiner and marketer.

"Profitable" Margins Differ

Third, there is no way of knowing exactly what is a profitable margin for all types of jobbers. To one 3½ cents might be ample, to another 5 cents would be too little. Furthermore, the amount of this margin has been largely the result of bargaining, with the bigger and better jobbers more likely to get the biggest margin. The trade has, however, undertaken to operate on a more or less uniform margin, the result being that, in the heat of competition, the able jobber has been able to meet cut prices and still keep a profit while the less capable jobber has lost money, even perhaps when collecting all his maximum margin.

Fourth, as competition got keener and the Standard company found it necessary, in its opinion, to make discounts off the tank wagon price, either directly or through the Q. D. A., then the jobber found himself truly in a perilous position. His 4 or 5 cent margin didn't mean that at all on an increasing portion of his business, for in meeting these quantity discounts—and the jobber was responsible for the first discounts in multitudes of cases himself—he was decreasing his average margin until, in the past month or two, with many jobbers that average has been unprofitable.

The marginal contract has many good points, but it is not fool proof nor can it bring and keep the millennium for either one or both parties to it. Like all things in this world this form of contract has to be taken with a measure of business common sense. It cannot be looked upon as infallible in bringing profit to all.

Now that the margins under this form of contract have narrowed until they hurt in many cases, jobbers are casting around for some means of bringing back the wider margins to themselves.

The first thought has generally been to construe the contracts as being based upon the "actual" tank wagon price in a district and not the posted price, so representations have been made to NATIONAL PETROLEUM NEWS from various unprofitable centers to show in its price tables only the "actual" price. This we have declined to do for the very good reason that we could not do it, in the first place, and in the second it would not affect the jobbers' contracts if we did.

"Actual" Prices Unobtainable

To show the "actual" price would mean finding out exactly at what price every gallon of gasoline was sold by every oil marketer big and little in a territory and then working out an exact weighted average. This information could only be obtained by having an accountant —or several—representing this paper in every office of every oil company in the territory being checked. Those accountants would have to have access to every record in the office and probably would have to do a certain amount of detective work to make sure that a salesman was not holding out on them and paying a rebate out of cash from his own pocket and charging it to traveling expense.

Anything less than the exact facts would be foolish. So called general knowledge as to what a company, or several companies, are doing would not cover the case because no one would know just how much gallonage such knowledge covered. From time immemorial there have always been some discounts and rebates off the tank wagon price, only generally they are not enough to hurt. By taking general knowledge one would have to determine just when the time honored price cutting became general enough to warrant recognition of it in a price on which millions of dollars worth of contracts are based. We think even the United States Supreme Court might duck the job.

Besides it is not the province of NATIONAL PETROLEUM NEWS to construe contracts. That job belongs to the courts and they would probably be immediately called upon to pass judgment on the marginal contracts, were this paper to depart from the system that it has followed for nearly 18 years in showing the "posted" tank wagon price of the dominating Standard companies in each territory, which companies we have always named in connection with those prices.

This paper has never undertaken to show what the "actual" tank wagon price may be. It has only shown what these big companies have said, through an authorized official, is their "posted" tank wagon price. When there appeared to be any general system of discounts from these prices, we have always printed that information—when we learned of it—in conjunction with the tank wagon tables, for the oil trade to do with as it saw fit.

Would Not Affect Contracts

If NATIONAL PETROLEUM NEWS were to change from this 18-year old practice and undertake to show the "actual" tank wagon price even of the Standard companies, if that

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were possible, there is little doubt but what the refiners would take into court at once every jobber who undertook to insist upon the "actual" price being read into his marginal contract instead of the "posted" price, and there is little doubt but what the courts would sustain the refiners.

The courts would say, in effect, that, when these contracts were made, they had in mind the price that the big companies "post" which may or may not be different from the "actual" price. The courts would also say that the fact that the NATIONAL PETROLEUM NEWS might discontinue publishing the "posted" price had nothing to do with the existence of that price if the companies continued to post it. The courts would call in the big companies, or in other ways ascertain what the "posted" price was and put that in the contract.

NATIONAL PETROLEUM NEWS is named in those marginal contracts as a reliable medium of reporting the existence of the "posted" price, but not as the creator of that price. If this paper suspended publication the courts would not permit these contracts to be voided, because we are not the original publishers of the tank wagon prices. The companies who make those prices are the original source of record of them.

In the case of the refinery prices in Group 3 and the weighted average price, the case is a bit different, because there NATIONAL PETROLEUM NEWS gathers the original information and then expresses its best judgment as to what the market is. The judgment is that of this paper and not of any oil company or any one else. But the tank wagon prices belong to the oil companies that make them and not to this or any other paper.

May Be Mostly Fiction

The jobber has argued in some cases that the posted tank wagon price is a fiction; that very little if any material moves on it. That still has nothing to do with this, or any other paper, saying that such a Standard company is not "posting" a 15-cent price when it actually is. Neither this paper nor any other would have any means of knowing how fictitious a price of a given company is, without checking completely its books and records, a most stupendous job in the case of a Standard company even if the company would permit it. However, NATIONAL PETROLEUM NEWS has always, so far as it can get the facts, undertaken to inform the trade of any price policy which gives material and general reductions off the posted price.

But this paper cannot undertake to modify or change the terms in a contract between refiner and jobber. That can only be done by those two parties. If the information which is published and which may be generally available should cause the jobber to go to the refiner for modification and for the refiner to grant that modification, that is their business and not ours. They made the contract and we didn't. They alone can change it. Any effort on our part to do so would be laughed out of the courts.

Now, as to whether, when a general price reduction policy is in effect below the posted tank wagon price, there should be a modification of a marginal contract so as to re-establish the jobber's former margin, is a very large question on which there is much to be said on both sides. It is the question which hits right at the fundamental weakness of the marginal contract.

The question comes down to this, should the refiner be called upon to guarantee the jobber a profit, or even guarantee him against loss, when the refiner has absolutely no control over the jobber's business, the quality of his management or the method of his making prices?

Growth of Marginal Contracts

The genesis of the marginal contract was the desire of the refiner to establish in the first place, when there were a scarcity of jobbers, an outlet for his gasoline. Next, to develop and maintain this outlet against price wars of the old variety which would eliminate the jobber as a class from the oil business. But all the time the jobber has been an independent agent who becomes the owner in fee of all material when he puts it in his tanks and can do with it as he sees fit; he can make whatever prices on it he wants to; can make all the discounts he desires and can put in a multitude of service stations and not collect his accounts receivable. Over all of these the refiner has no jurisdiction.

For some years the marginal contracts served an excellent purpose and built up a strong group of jobbers. Then these same jobbers were made to suffer heavily because newborn competitors found they could buy cheaper in the open tank car market and sell against the jobbers with marginal contracts, getting their business and forcing them to suffer loss.

The past year the refiners have found out how to protect themselves and the jobbers against an unnecessarily low tank car market by not making more goods than the market will absorb. The result has been that the marginal contract jobbers this past summer have had a preferentially lower price than those who bought on the open market. However, this preference was of some doubtful value because of the concessions which had become established in previous years.

If the marginal contracts were always to be applied from the "actual" tank wagon market just one thing would happen and that would be the destruction of the refinery business, if those contracts had long enough time to run, and a destruction of the capital of even some of the biggest companies. Basing the margin on the "actual" market would remove all in-

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Quincy Compressors, with their long-lived, trouble-free service, will hold your old business while acquiring new. Quincy units, according to the men who use them, are helping to raise many small stations to the "super" class.

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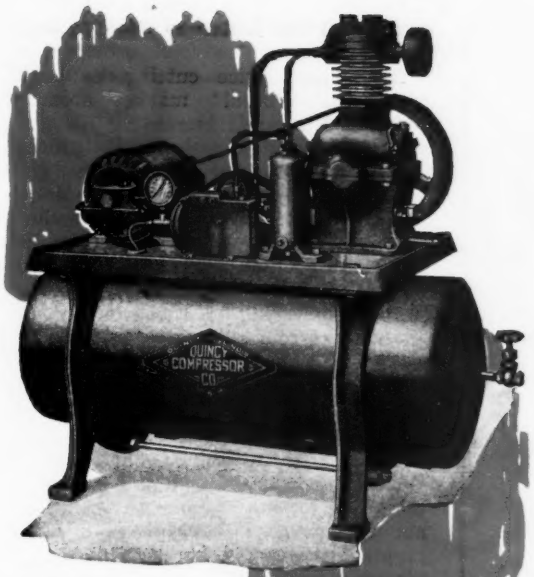

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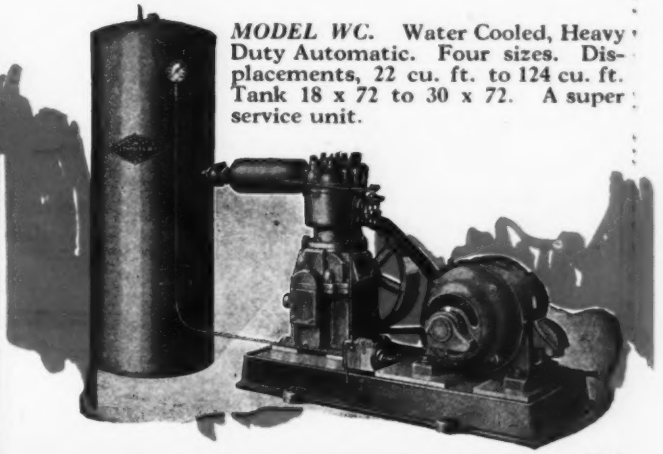

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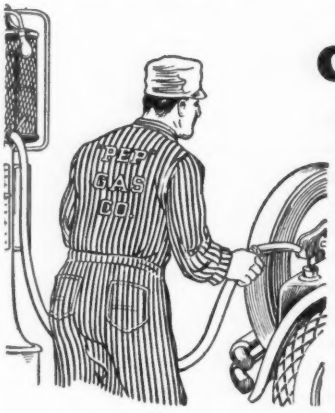

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centive on the jobber to stick to anybody's price.

By skillful price cutting he could work the "actual" market steadily downward, himself increasing his gallonage all the time and also his profits, if he cared to—the greater his gallonage the greater his profit under this fixed margin—until the ridiculous extreme might be reached of the refiner giving him the gasoline for nothing and paying the jobber his margin in cash, so that the jobber could give the gasoline away to the public.

Both Have Responsibilities

The refiner and jobber are each engaged in separate businesses. One supplements the other, but each is separate nevertheless. The capital and the management belong to each and not to both. The responsibility for keeping expenses down and conducting his business in a sane, common sense fashion and to make a profit, is on each, not both. In case of some unusual circumstance good business might dictate that the one come to the aid of the other. But the one does not owe the other a profit.

In past years, when the tank car market has been low, the refiner has shed tears of anguish on the jobber's shoulder and begged for help. It was fitting that the jobber give him help, but what the refiner needed at that time was not help from the jobber but help from himself—a sane policy of manufacturing what the market would consume profitably and no more. The refiner was bringing his own ruin. The jobber had nothing to do with it. And it was not until the refiner recognized this that he got his own house in order.

The jobber has certain matters also over which he has sole control. They are not of the refiner's business. The jobber must see to it that he does not over extend his efforts, that he does not give away his profit—in short he must see that he conducts his business as any business man should.

There will be times, as now, when an individual jobber will be caught by forces over which he, as an individual, has practically no control—forces created by his foolish competitors, yes, even the big companies. The same thing is true of the individual refiner, as well as the individual in all lines of business in this world. Those forces may not always be fair. But that is the way of the world.

However, under such circumstances the right kind of an individual who has conducted his business properly should find no difficulty in finding such friends, even among the refiners, who will see him through the hard period, just as he would be among the first to help his friend, a refiner, through such a period. But this is a matter of individuals and not of any general policy.

A relation between refiner and jobber that will seem ideal to both probably never will be found. However,

it is safe to predict that some of the mistaken policies of the past will be eliminated in the future. They should be after all the turmoil and trouble that they have caused.

Type of Contract Will Change

The change to whatever the relation of the future will be, will be gradual, will be a series of compromises, as all matters are in this world. The marginal contract, it is probably safe to predict, will not be entirely done away with—at least not for some time to come. Yet it undoubtedly will be in such form as to make the jobber realize that he alone is responsible for maintaining a profitable market and getting a profit.

At the same time that contract should be of such a nature as to permit the jobber to protect himself against being stabbed in the back by a new competitor, whenever the open tank car market gets below the price he is paying on contract goods, that is over any important period of time. The jobber cannot be expected to operate on a contract if his business will be taken away from him by some one buying on the open market at such a price as to permit that competitor to cut under the contract jobber's price continually and to such an extent as to cause him the most serious loss.

It is the refiners' duty, in every refining district in the country, to see that the tank car market is kept at a level which will protect the favored jobbers who have contracts; but it also is the jobber's duty to see that he maintains his tank wagon and service stations prices so as not to put any undue pressure on the refinery tank car market. The relation, as has been said even too many thousands of times and mostly to no good, is mutual, but the mutuality must be based upon common sense business practices and not on dreams of a millennium.

Contracts for Better Jobbers Only

As a matter of every day business practice in every business, the man who makes a contract is entitled to a better deal than the man who does not but who is content to take his chances here, there and the other place. That last man is a speculator for the most part and it is only a question of time when he will run into heavy losses. He also is liable to be the poorer business man. Contracts in the oil business should only be given the better type of oil jobbers, those who conduct their businesses in a sound fashion, who play square with every one and who pay their bills and make their customers pay theirs on time and in real money.

In a word they should be men who are a credit to a community and a credit to the whole industry. These are the jobbers who are the backbone of the business and the type of men who are the backbone of this nation. Anyone can enter their class who does likewise. If he cannot follow their good example that is his fault and

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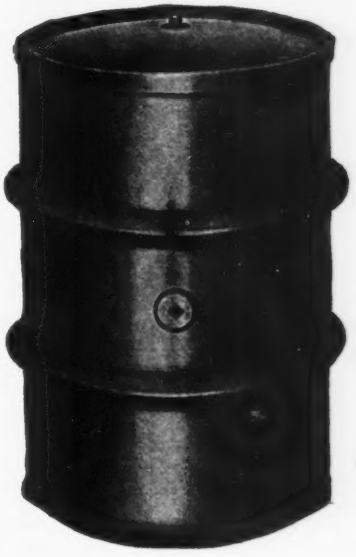
THE American public buys on faith and repeats on confidence.

Confidence forms the very foundation on which the structure of satisfactory relationship between buyer and seller exists.

"Defiance" performance—based on years of experience in studying the practical requirements of the oil industry—is the explanation of the high regard in which "Defiance" Steel Barrels are held in the industry.

Our constant care is to see that this reputation is upheld through consistently maintaining the quality that has identified "Defiance" Steel Barrels with a high degree of value among buyers in the oil industry.



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Lettered Sample Oils are available with cut and polished bottoms, if desired, packing same as plain bottles.

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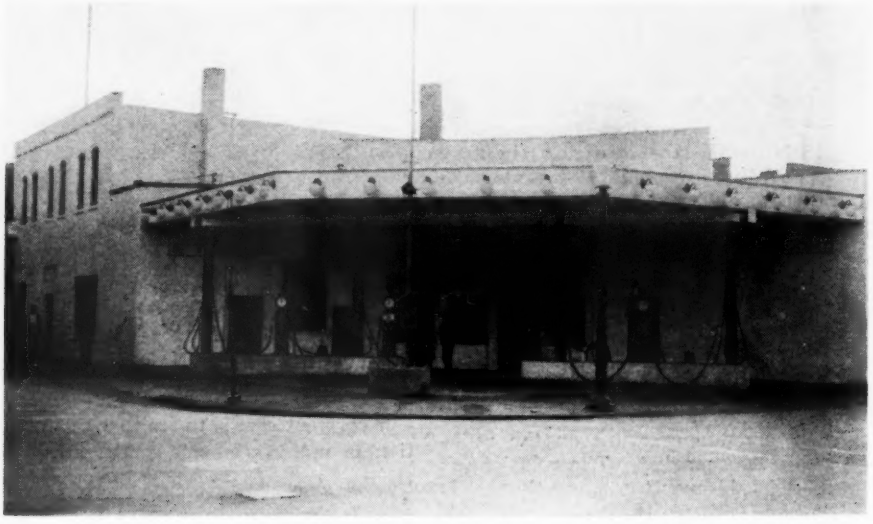
he need not ask sympathy. He is the incompetent, inefficient man who is not entitled to live in the business because, if he were permitted to live, the price to the public would have to be higher than it should be just to take care of him.

The refiners this year—and this goes for them in all parts of the country—should exercise the greatest care in selecting those who are justly entitled to contracts and these contracts should be so valuable that these better jobbers will want them and will protect them. Then the remainder should be required to take their chances on the open market but that should be maintained at such a height, by intelligent manufacturing and sales policies, as to insure this justified advantage to the better jobber.

Probably all this will not be worked out in an ideal manner but it is the goal for which the reputable refiners and jobbers of the country should strive. The nearer they get to it this next year the more certain they are of having good business and reasonable profits.

Tyler Oil Co. Rebuilds Drives, Replaces Gasoline Equipment



The main service station of the Tyler Oil Co. at Conneaut, Ohio

Staff Special

CONNEAUT, O., Sept. 14

DICK TYLER rebuilt the canopy and drives and installed new dispensing equipment this year at the main service station of the Tyler Oil Co. Truck replacement was included in the changes.

The canopy was raised and three narrow lanes were changed to two wide drives. The largest trucks can use either drive and pass under the canopy which is now 13 feet 6 inches off the ground. The new drives make for easier entrance and exit.

Meter dispensing equipment has been installed for gasoline lines. There are two islands. One has a meter with four outlets and a kerosene pump. On the other island is a second meter for competitive gasoline and another for Ethyl gasoline.

Two rotary pumps deliver gasoline to the meters. They have been installed so that one pump can serve one or all meters, and in an emergency there is a hand pump. The dispensing equipment was purchased from S. F. Bowser & Co.

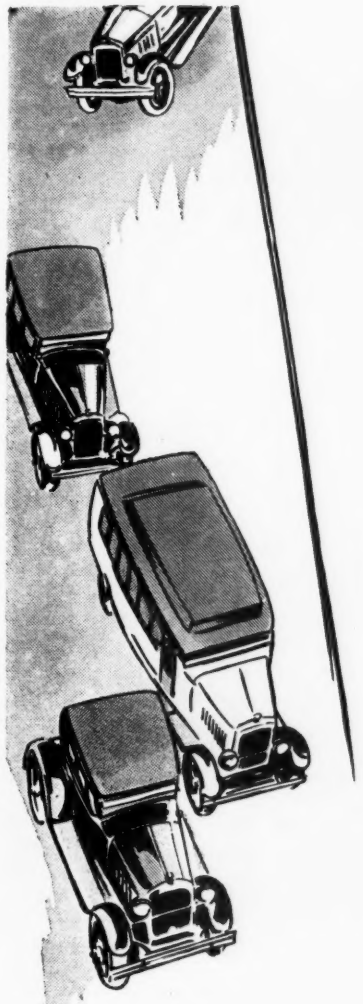
Competitive grade of gasoline is piped by gravity to the station from the bulk plant approximately 1000 feet away. Ethyl gasoline and kerosene are hauled in trucks.

An alarm clock stands guard while the station's storage is being filled. When gaging shows station storage getting low, a valve in a manhole at the curb is opened and the alarm clock set to ring when the tanks are to be full. Gasoline flows through the 1-inch piping at the rate of about 350 gallons an hour, so the time can be computed. When the tanks are full the clock rings and the task is completed.

Valves at the bulk plant on lines leading to the station are open always, so the station can get a supply on Sundays and holidays.

Free service for customers includes battery watering, windshield cleaning and tires inflated. The windshields are washed with alcohol. An electric still at the station operates continuously and provides about two gallons of distilled water an hour.

In the adjoining building to the west is a four-drive auto laundry and



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While not offered as a winter fuel exclusively, the superior qualities manifested by Nevr-Nox in cold weather are so evident, that progressive dealers everywhere are right now preparing for greater gallonage and larger profits all through cold weather. And because NevrNox *does perform*, trade built by it develops permanent, year-round customers.

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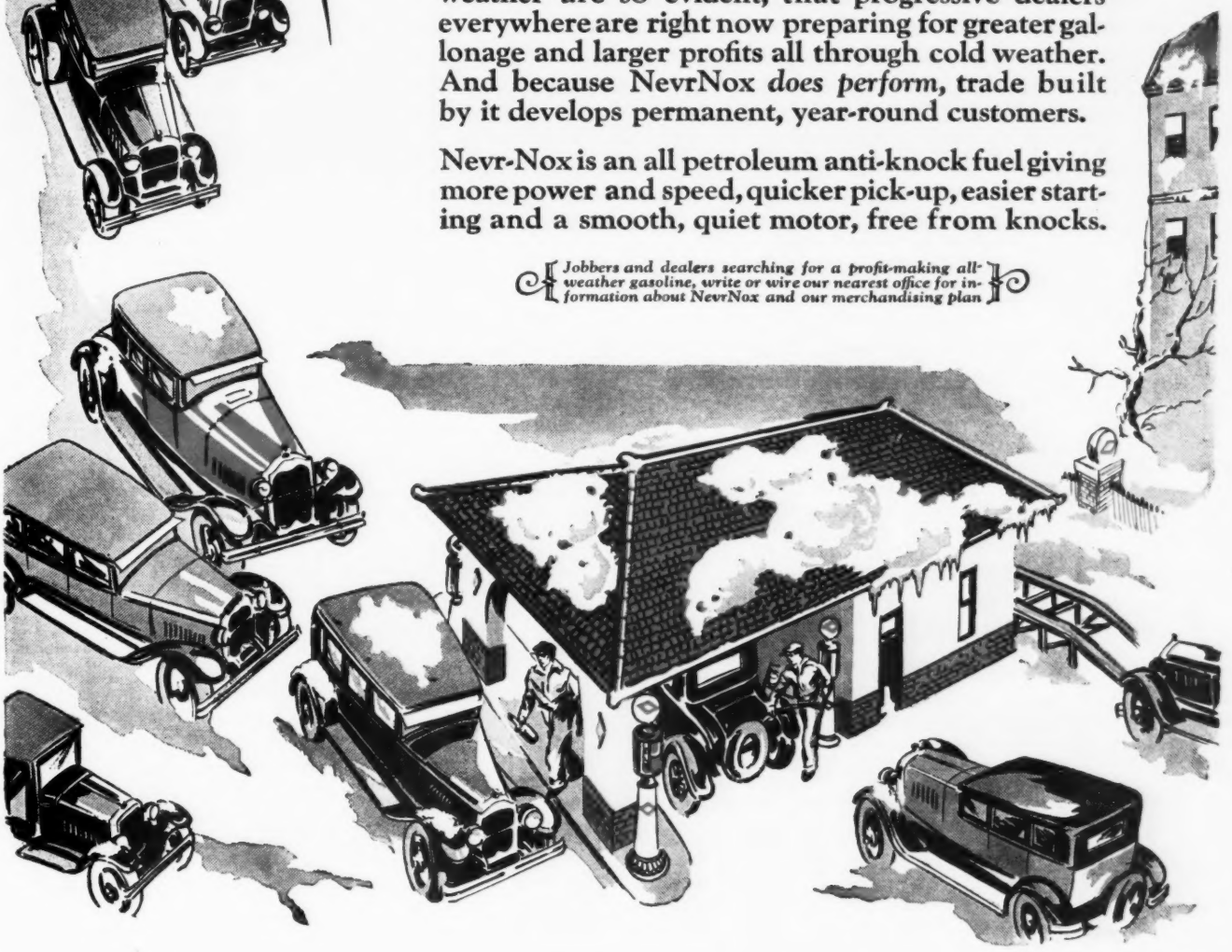
Jobbers and dealers searching for a profit-making all-weather gasoline, write or wire our nearest office for information about NevrNox and our merchandising plan



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greasing room. The postoffice adjoins to the south.

As the station is open all night, accessories are sold, such as spark plugs, valves, light bulbs, tubes and tires. A more complete line was carried, but this has been reduced as experience dictated.

The station has brilliant illumination at night, with nineteen 100-watt lamps around the canopy and twelve 200-watt lights under the canopy.

A bulk service station is operated along the railroad tracks, about 300 feet back of the bulk plant. All services obtainable at the main station, are given here if time of the attendant permits. No accessories are stocked.

Gasoline is delivered from the bulk plant by gravity, excepting the Ethyl which is trucked. There is a concrete block building for oil storage and the attendants. Two meters are on an island under a canopy and two on the other side of the station building are in the open.

Tank wagon prices on competitive grade of gasoline prevail at the bulk service station. It was opened several years ago in competition with the bulk service stations of Standard Oil Co. of Ohio.

All sales are for cash, also, at the bulk service station while credit is extended uptown. In winter time the bulk service station does as much business as the uptown outlet, but in summer tourist patronage gives the uptown plant the advantage. All classes of auto owners are patrons of the bulk service station.

Oil Trademarks for Copyright

The following are trademark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Barrister Building, Washington, D. C., trade-mark specialists.

As an additional service feature to its readers, this journal gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering. You may communicate with the Editor of this Department, or send your inquiry direct to the National Trade-Mark Company, stating that you are a reader of this journal.

"TRIN PETRO" No. 254,874. The Trinidad Lake Petroleum Co., Ltd., Brighton, Trinidad, British West Indies. For road oil.

"KLEEN POWER" No. 259,444. Hercules Oil Co., Cleveland, Ohio. For motor fuel oils.

"RADIANT" No. 254,413. Midway Chemical Co., Chicago, Ill. For machine oil for household use.

"SKY-HY" No. 269,124. Lubrite Refining Company, St. Louis, Mo. For gasoline.

"THE PATAPSCO OIL AND GREASE COMPANY" (this expression is written over a large "R"—No. 264,188. The Patapsco Oil & Grease Co., Baltimore, Md. For lubricating oils and greases.

"SIMON RED HOT GASOLINE" No. 260,359. Simon Oil Company Inc., Niagara Falls, N. Y. For gasoline, kerosene, distillate furnace and lubricating oils.

Aviation Fuel Sales Make Large Gain

CLEVELAND, Sept. 15.—Sales of aviation gasoline by four large refining companies increased 170.7 per cent in the first half of 1928 over sales in the first half of 1927.

As these four companies market over a considerable area the increase in their business may be taken as an index of the gain in aviation demand.

The four companies sold 759,943 gallons of aviation in the first half of 1927, 3,161,835 gallons in all of 1927 and 2,057,014 gallons in the first half of 1928.

This gallonage does not include that of the Standard Oil Co. of California, the Richfield Oil Co. or other Pacific Coast companies which have specialized in aviation motor fuels.

East of the Pacific coast the aviation motor fuel business has been largely in the hands of the Standard Oil companies but some of the Independents have been getting into the business. Rapid strides have been made in the Mid-Continent particularly by those companies that have large natural gasoline production.

Leaders in the Mid-Continent field have been the Phillips Petroleum Co., Chestnut & Smith Corp., Skelly Oil Co., and the Empire companies.

This year Roxana Petroleum Corp. introduced its Shell Aviation gasoline and lately Sinclair Refining Co. has brought out a Sinclair Aviation gasoline which is being sold at its automobile service stations.

In the Rocky Mountain field the Continental Oil Co. early this year introduced Conoco Aviation gasoline, although it had been serving the air trade with a high test fuel called Conoco Special gasoline.

The Standards of New Jersey, Ohio and Indiana, and Atlantic Refining Co. have done a relatively large aviation fuel business east of the Mississippi and have gained considerable hold on the trade largely through the service they have given this new trade.

Aviators are clubby individuals and given to telling one another of their experiences. Whenever they have been caught in a pinch for motor fuel and oil, no matter where they have been forced down, a call to one of the Standard offices has quickly brought supplies, an aviator told this writer not long ago. This service has been advertised by one of the most effective mediums—word of mouth. However, the Standards have not cornered the business and Independents who have been willing to do some pioneering have shared in it.

FINAL INSPECTION

Each tank built by Sistersville undergoes a final, rigid inspection before it leaves the factory. Although inspected thoroughly at each stage of manufacture, the final check on tightness and perfect workmanship, eliminates any slip-up which might occur along the line. After the inspector marks his O. K. on a Sistersville tank, you can be sure that the utmost in quality, materials and workmanship have been employed to produce a tank that will remain tight through many years of valuable service.

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"WHAT ABOUT THE OILGRAM?"

The executive of a gasoline company on the west coast recently inquired of a Tulsa executive, who replied in part. . . . .

"If you were to wire me for Mid-Continent gasoline prices I would phone a member of the OILGRAM staff, and my reply to you would be the GIST OF WHAT HE TOLD ME. The OILGRAM staff is in direct and close contact with the markets almost every hour of the business day.

THEY KNOW THEIR BUSINESS"

You, too, can have the benefit of this close contact with all phases of the market at all the principal refining and marketing centers. The service costs only $25 a quarter, or $75 a year, payable in advance. Approximately 30 cents a day—less than the cost of one wire or one phone call.

Why not avail yourself of this service—send your order with check to the nearest mailing point.

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Super Service Stations and Greasing

In 59 articles during the past 1½ years, NATIONAL PETROLEUM NEWS has told how to build and operate super service stations profitably — how to build greasing stations — how to sell lubrication service and how to grease cars properly—

These articles tell you how:

1928

Super station has free serve-self car wash Sept. 12, p. 89

Chain stations de luxe in California Aug. 22, p. 25

Profits from proper greasing of cars Aug. 22, p. 71

Super service stations, central locations Aug. 15, p. 80

Bus terminal boosts sales Aug. 1, p. 20

Camp in scenic region draws tourists July 25, p. 68

Everything for the car on one lot July 25, p. 83

Grease salesman tells how to sell grease July 18, p. 81

Station reclaims desert in California July 18, p. 84

Elaborate station opened in Tulsa July18, p. 94

Brake tester added to super station July 4, p. 101

Tourist camp increases gallonage June 27, p. 27

Chassis greasing profit hardly scratched June 13, p. 21

Cuba has first super service station June 13, p. 84

Determining successful stations June 6, p. 29; May 9, p. 67; Apr. 25, p. 27; Apr. 18, p. 29

Greasing success means good merchandising May 30, p. 53

Super station solves parking problem May 30, p. 26

How car lubrication adds to profits May 23, p. 19

Grease station designed after year's travel May 16, p. 25

S.A.E. viscosity numbers for motor oils May 2, p. 23

California station patterned after mosque Apr. 18, p. 93

Answers to 48 questions about motor oil Apr. 11, p. 84

Super stations favored more in city Apr. 11, p. 121

Commissions boost lube oil sales Apr. 11, p. 123

Individually owned super stations thrive best March 14, p. 97

Leasing super stations to individuals March 14, p. 113

Builds airplane and auto station March 7, p. 104

Profitable business in company stations March 7, p. 17

Artistic station has variety of services Feb. 29, p. 85

S.A.E. viscosity numbers for motor oils Feb. 8, p. 58

Steady customers at grease stations Feb. 1, p. 29

Chain store methods in selling gasoline Jan. 25, p. 27

England builds drive-in stations Jan. 4, p. 88

1927

Auto laundries for gasoline stations Dec. 28, p. 25

Invests $200,000 in super station Dec. 21, p. 26

"Open all night" stations profitable Dec. 14, p. 47

Contest for station designs Nov. 16, p. 31

Greasing rightly done Oct. 26, p. 50

Faster car driving brings new lube requirements Oct. 12, p. 17

Super service station merchandising Oct. 5, p. 83

Accessibility governs station design Sept. 28, p. 19

Ample space for service Aug. 10, p. 27

Opens compact pagoda station Aug. 3, p. 73

Good greasing done in alley July 6, p. 73

Super service station under one roof June 22, p. 81

One pump business now super station May 11, p. 45

Builds stations to fit surroundings May 4, p. 27

Leases stations to individuals May 4, p. 95

Boosts grease sales by quota Apr. 13, p. 56

Sells coach lubrication by the mile Apr. 13, p. 93

Greasing done in formal gardens March 2, p. 72

Package campaign increases motor oil sales March 2, p. 91

Station has golf course March 2, p. 124

Teaches bus and truck lubrication Feb. 23, p. 89

Greasing on contract carries diploma Feb. 16, p. 84

National Petroleum News

Main Office: 1213 West Third St.

Cleveland, Ohio

I See By the Paper - -

Doctor Cook Wants Out—Frederick A. Cook, Arctic explorer and oil promoter now serving a sentence of 14 years and 9 months in Federal prison for mail frauds, has appealed to President Coolidge for executive clemency. He wants the sentence remitted to what has been served already and fine remitted.—*Chicago Tribune, Sept.* 5.

Diesel Engine Maker Moves—The De-La Vergne Co., subsidiary of William Cramp & Sons Ship & Engine Bldg. Co., whose marine shops have been closed since 1926, is moving from New York to Philadelphia to continue the making of Diesel engines for oil pipe line companies and other industrial uses.—*Inland Oil Index, Aug.* 31.

Chicago Jobber Jailed—C. S. Rosenthal, head of Apex Motor Fuel Co., in 1927 president of Illinois jobbers, and director of I.O.M.A., was sentenced to 10 days in jail for contempt of court by a Chicago judge on Sept. 7. He refused to comply with a duces tecum subpoena in a case wherein the company was not concerned.—*Chicago Tribune, Sept.* 8.

Sees First Oil Well—Roy O. West, Secretary of the Interior, together with his party, were at Frannie, Wyo., on Sept. 7, and saw their first producing well. The "discovery well" in the middle of a 28,000-acre government reclaimation project is 4000 feet deep, 18 inches in the pay and produced 125 barrels the first day with the tools in the well.—*Chicago Daily News, Sept.* 7.

John D. Clark in College—At the age of 44, Jno. D. Clark, president of Midwest Refining Co., director of S. O. Indiana, resigned both jobs and matriculated in Johns Hopkins University. He graduated from University of Nebraska in 1905 and took a law degree from Columbia University in 1907. Now he proposes to take three years of economics. He is motoring from Denver to Baltimore where he has bought a home.—*Chicago Tribune, Sept.* 6.

Cigaret Causes Explosion—An explosion at the Ray, Okla. station tank farm of the Phillips Petroleum Co. cost the life of Ernest E. Hill, an employe of the company, and badly burned a fellow employe named Daugherty who attempted to go to his rescue. A cigaret lighted too close to the tanks, which ignited gas, is believed to have caused the accident.—*Tulsa World, Aug.* 31.

U. S. Arbitrators Illegal in Oil Leases—In a contract involving the Amarillo Oil Co. and the Government in the development of a heli-

um gas area by the former, the authority of a government board of arbitrators to settle disputes in oil and gas leases was questioned by Comptroller General J. R. McCarl, who said that the act of Feb. 16, 1928 did not authorize the submission of disputes to such a board but that they should come to his office for judicial determination.—*U. S. Daily, Sept.* 6.

Leases 40,000 acres on Lake Maracaibo—Mexican Seaboard Oil Co., through its subsidiary Venezuelan Seaboard Oil Co., has leased about 40,000 acres on west coast of Lake Maracaibo from Venezuelan Gulf Oil Co. (Gulf Oil Corp. subsidiary). Consideration was not divulged.—*N. Y. Times, Sept.* 1.

Russia to Buy Oil Machinery in U. S.—Saul G. Bron, chairman of Amtorg Trading Corp., Russia's largest importer-exporter, is in the U. S. with Russian business men who will visit motor car plants here. The company expects to spend $40,000,000 here in oil refinery equipment, farm tractors and automobile trucks.—*N. Y. Times, Sept.* 1.

Amerada Insures Employes—Amerada Petroleum Corp., New York, has insured 600 employes at $1,500,000. —*N. Y. Times, Sept.* 2.

Railroads Use 400,000 Barrels More Fuel—U. S. railroads in 1927 consumed 68,777,836 barrels of fuel oil in 1927, or 385,446 barrels more than in 1926. Railroads in California showed largest gain and those in Atlantic Coast states showed largest decline.—*U. S. Daily, Washington, Sept.* 1.

Gross Production Taxes in Oklahoma—These totaled $1,499,157.87 in August, according to the report of the state auditor. This does not, however, represent tax on production during that month, as some of the money, as always, was late in getting into the state department. The consumption of gasoline, as indicated by tax returns, was the highest in August in any month in four years. A consumption of 28,046,272 gallons was indicated by the returns.—*Daily Oklahoman, Sept.* 1.

Lease Brokers Pow-wow—Lease and royalty buyers and holders have held much pow-wow at Oklahoma City since the Indian Territory Illuminating Oil Co. made its second strike of gas Wednesday noon. The well is about six miles south of the city. No big deals have been reported. One offer of $500 per acre base for 20 acres royalty was refused.—*Daily Oklahoman, Sept.* 7.

Stuart A. Giraud, executive in charge of refinery cost accounting for the Humble Oil & Refining Co., at Houston headquarters offices, spent his vacation period in Canada.

NATURAL
GASOLINE
Grades A · AA · B · BB · C
CONTRACT OR SPOT
WILLOCK OIL CORPORATION
First National Bank Building · Phone Atlantic 3110
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Guaranteed 100% PURE PENNSYLVANIA OIL

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For nearly 50 years, The Freedom Oil Works Company has specialized in the refining and blending of 100% Pennsylvania Oils. In one way, that explains why jobbers the country over come to this concern for their requirements.

Deliveries can be made immediately, in tank cars, compartment tank cars, barrels, or drums.

Write for quotations.

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450 Bright Stock (Sharples Process) which requires less Neutral to blend to the ordinarily required specifications.

100% Pennsylvania Motor Oils, *blended to your own Specifications*, from Freedom 450 Bright Stock and Freedom 100% Pennsylvania Crude Neutrals.

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600 Steam Refined
635 Steam Refined
650 Steam Refined

Freedom 300 Mineral Seal Oil made to Railroad Specifications.

Freedom Filtered Burning Oils.

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Established 1879
Refineries at Freedom and Coraopolis, Pennsylvania

FREEDOM

Oil Traffic Salvages Orient Railroad

WASHINGTON, Sept. 15.—Acquisition of the Kansas City, Mexico & Orient by the Atchison, Topeka & Santa Fe is a romance of oil. But for the discovery of oil in the territory of the Orient in 1923 that railroad instead of being absorbed now by one of the richest railroad systems in the country would probably be on the market as junk.

Three times between 1912 and 1923 there was serious discussion of the futility of trying to make it pay. Twice plans for abandonment were actually made.

A year before the discovery of oil it was kept alive only by the government's reaching into its treasury for $2,500,000 to keep the 700 mile line in operation. The part of the system in Mexico, strange as it may seem, has been and is self-supporting.

Nearly one-half of the revenue of the Orient is derived from its petroleum traffic; that is traffic composed of oil well supplies into and petroleum and products out of its territory.

The Santa Fe, the buying railroad, is the largest carrier of petroleum and its products in the country. Oil is the largest contributor to its gross revenue.

In the course of the many hearings on the Midcontinent Oil Rates, 1925 case, Santa Fe general officers testified that oil constituted the bulk of its traffic. They gave proof by refusing to take the higher rates which the rate regulating body said it might have, on traffic from the Oklahoma group to the eastward.

They were not givers of gifts when they declined to take higher rates. They merely declined because the oil refiners had testified that if they added to the rates the 2 cents the Interstate Commerce Commission said they might take some of the refiners would build pipe lines into the Kansas Group 2 territory and give the traffic to lines not charging such high rates.

In its opinion announcing that it thought the public interest warranted the Santa Fe taking over the Orient the Interstate Commerce Commission said:

"The Orient has never been able to finance itself. On two, and possibly three, occasions abandonment of the line was seriously threatened. Operations were continued through special consideration granted by Federal and state regulatory and taxing bodies.

"Since the fiscal year ended June 30, 1914, to and including the calendar year ended Dec. 31, 1923, operation of the lines in the United States resulted in a deficit each year, with the exception of the fiscal years ended June 30, 1915, and June 30, 1916, in neither of which years did net earnings aggregate $100,000.

"In 1923 oil was discovered in the

Orient's territory, and in 1924 net earnings were $142,201.96. Since 1924 no year has shown a deficit and each year has shown an increase in gross revenue. This increase was due almost wholly to the transportation of oil and its products, and oil well supplies. These commodities accounted for 47.97 per cent of all freight revenue in 1927.

"The Orient is peculiarly dependent upon its revenues from oil and its products. The record does not afford any assurance that operations could be conducted profitably should this source of revenue be lost through the exhaustion of the oil fields. Control by the applicant will provide the Orient an increased power and car supply, and protection in emergencies, and will also effect a reduction of expense by savings in per diem and car mileage charges, and a coordination of traffic and facilities."

1928 Summer Gasoline Is More Volatile

WASHINGTON, Sept. 15.—The motor gasoline marketed in the United States this summer is slightly more volatile than that sold a year ago, according to the Bureau of Mines, Department of Commerce, which recently completed its eighteenth semi-annual motor gasoline survey.

The increase in volatility is shown by a lowering of the distillation temperatures, ranging from 2° Fahrenheit at the average initial boiling point to 4° Fahrenheit at the average end point.

In the past there has usually been a distinct difference between "summer" and "winter" gasoline, that marketed during the summer being less volatile than that sold during the winter.

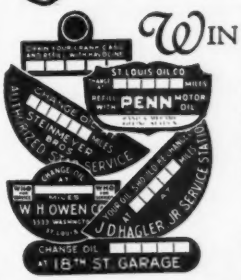
This summer the average figures indicate a decided return to the sale of a less volatile summer-grade gasoline, the change being especially evident in the samples from New York, Washington, Chicago, New Orleans, and St. Louis. This difference is most noticeable in the initial and 20 per cent points. A study of the individual analyses, however, shows a general tendency toward the marketing of a standardized product, as individual variations from the average are small.

Although the gasoline marketed this summer is more volatile than that sold during the summer of 1927, it is less volatile than that marketed in January, 1928.

The cities in which the eighteenth semi-annual motor gasoline survey was conducted are Boston, New York, Washington, Pittsburgh, Chicago, New Orleans, St. Louis, Omaha, Denver, San Francisco, Bartlesville, Oklahoma, and Laramie, Wyoming.

Detailed information in regard to the results of the survey are given in serial 2887, which may be obtained from the Bureau of Mines, Department of Commerce, Washington.

CHANGE OIL STICKERS



WIN good will and build big repeat business for quality oil. Every service station should use them. We create individual designs and supply stickers in any quantity from 1000 to 1,000,000 or more. For a nominal charge, distributors can furnish their retailers with stickers bearing imprint of retailer's name and address.

Write for quotation and samples.

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Allison Coupon Books

Accurate—Compact—Convenient

The experience of 39 years has made the form of the Allison Coupon Book simple, practical and dependable. Progressive, wide-awake filling stations are exclusive users. Every book guaranteed to be absolutely accurate. Furnished in stock or special designs. *Send for samples and prices.*

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Coupon Book Specialists Since 1888

Rotary Lift

No better evidence can be offered of the value of Rotary Lift to oil marketers than the regularity with which repeat orders are received after the first Lift is installed.

New low prices. New and improved models—one to suit the needs of your own service station. Write for prices and literature.

Automobile Rotary Lift Co.
Memphis, Tenn.

Bennett Presents New Oil Pump

The New IMPERIAL

2-way Discharge on "CAR BARS"

THE new "IMPERIAL" *Gearless* Pump, especially designed with double shut-off nozzles for two-way dispensing, is supplied on all "CAR-BARS" as optional standard equipment at a small increase over the cost of regular Bennett Quality-Built crank-operated Pumps.

Elimination of all gears and use of all-metal construction, like that of the piston and cylinder assembly of a fine high-compression automobile engine, reduces possibility of wear to the vanishing point.

Illustrating "IMPERIAL" double nozzle construction as used on "CAR-BARS" of all capacities for two-way dispensing.

Compilation Of Mid-Continent Refinery Operations

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National Petroleum News

Mid-Continent Refinery Operations Week Ended September 14 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	North La.-Ark.	Total Week Ended Sept. 14	Total Week Ended Aug. 17
Plants Reporting	12	29	29	12	82	81
Da. Av. Cap. (bbls.)	92,000	160,200	130,100	54,900	437,000	434,700
Da. Cracking Capacity	30,700	52,600	17,200	22,700	123,200	123,200
Da. Av. Crude Runs	74,124 — 2.1	116,999 — 0.6	96,480 + 8.7	58,298 — 7.6	345,901 + 2.8	354,736
Da. Av. Other Oils	8,552 + 8.1	5,465 +438.4	6,528 + 8.1	1,021 +152.1	21,566 + 40.3	20,886
GASOLINE—Gallons						
Stocks, Sept. 7	8,437,000	21,379,000	13,881,000	3,986,000	47,683,000	46,993,000
Prod. 9-7 to 9-14	11,020,000 — 3.8	19,253,000 + 6.5	10,579,000 + 7.1	5,492,000 + 9.8	46,344,000 + 4.3	46,811,000
Ship. 9-7 to 9-14	11,834,000 + 8.6	19,001,000 + 3.7	10,905,000 + 6.1	4,474,000 + 2.4	46,214,000 + 5.4	47,034,000
Stocks, Sept. 14	7,623,000 — 9.6	21,631,000 + 1.2	13,555,000 — 2.3	5,004,000 + 25.5	47,813,000 + 0.3	46,770,000
Ratio Sales to Prod	107.4%	98.7%	103.1%	81.5%	99.7%	100.5%
KEROSENE—Gallons						
Stocks, Sept. 7	8,014,000	3,181,000	1,221,000	353,000	12,769,000	13,266,000
Prod. 9-7 to 9-14	2,151,000 — 5.7	2,934,000 + 8.9	1,605,000 + 4.0	177,000 + 35.1	6,867,000 + 3.3	6,809,000
Ship. 9-7 to 9-14	2,207,000 — 7.2	2,663,000 + 0.2	1,395,000 + 3.6	227,000 + 35.9	6,492,000 — 0.9	6,761,000
Stocks, Sept. 14	7,958,000 — 0.7	3,452,000 + 8.5	1,431,000 + 17.2	303,000 — 14.2	13,144,000 + 2.9	13,314,000
Ratio Sales to Prod	102.6%	90.8%	86.9%	128.2%	94.5%	99.3%
STOVE DISTILLATE—Gallons						
Stocks, Sept. 7	1,982,000	3,263,000	784,000	83,000	6,112,000	5,608,000
Prod. 9-7 to 9-14	150,000 +138.1	620,000 + 22.8	248,000 — 15.9	133,000 + 3.1	1,151,000 + 16.0	708,000
Ship. 9-7 to 9-14	101,000 — 48.2	590,000 + 4.8	515,000 + 94.3	137,000 + 3.0	1,343,000 + 16.2	436,000
Stocks, Sept. 14	2,031,000 + 2.5	3,293,000 + 0.9	517,000 — 34.1	79,000 — 4.8	5,920,000 — 3.1	5,880,000
Ratio Sales to Prod	67.3%	95.2%	207.7%	103.0%	116.7%	61.6%
GAS OIL—Gallons						
Stocks, Sept. 7	6,349,000	38,112,000	4,591,000	6,191,000	55,243,000	56,756,000
Prod. 9-7 to 9-14	1,848,000 + 24.7	2,188,000 0	1,588,000 — 13.4	2,159,000 + 7.4	7,783,000 + 3.6	7,743,000
Ship. 9-7 to 9-14	1,651,000 — 8.0	1,973,000 — 30.4	1,449,000 + 4.3	2,063,000 + 20.5	7,136,000 — 7.7	7,158,000
Stocks, Sept. 14	6,546,000 + 3.1	38,327,000 + 0.6	4,730,000 + 3.0	6,287,000 + 1.6	55,890,000 + 1.2	57,341,000
Ratio Sales to Prod	89.3%	90.2%	91.2%	95.6%	91.7%	92.4%
FUEL OIL—Gallons						
Stocks, Sept. 7	21,425,000	59,693,000	71,530,000	20,006,000	172,654,000	157,674,000
Prod. 9-7 to 9-14	7,550,000 + 10.3	8,067,000 + 11.3	13,937,000 + 9.9	8,473,000 + 6.8	38,027,000 + 9.6	39,803,000
Ship. 9-7 to 9-14	6,846,000 — 2.4	10,158,000 + 56.4	11,568,000 — 0.7	9,228,000 + 41.2	37,800,000 +19.3	34,313,000
Stocks, Sept. 14	22,129,000 + 3.3	57,602,000 — 3.5	73,899,000 + 3.3	19,251,000 — 3.8	172,881,000 + 0.1	163,164,000
Ratio Sales to Prod	90.7%	125.9%	83.0%	108.9%	99.4%	86.2%

Gasoline Produced by Various Methods, Week Ended September 14

	Kansas	% of Total	Oklahoma	% of Total	Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	7,125,000	64.7	12,200,000	63.4	8,551,000	80.8	2,479,000	45.1	30,355,000	65.5
Cracked	3,129,000	28.4	5,803,000	30.1	1,715,000	16.2	2,466,000	44.9	13,113,000	28.3
Natural	766,000	6.9	1,250,000	6.5	313,000	3.0	547,000	10.0	2,876,000	6.2
Total	11,020,000		19,253,000		10,579,000		5,492,000		46,344,000	

+ or — columns are % change from previous week.

Only Small Gain is Made in Gasoline Stocks

Staff Special—By Telegraph
TULSA, Sept. 18

STOCKS of gasoline at 82 refineries in the Mid-Continent field were little changed the second week of September, according to reports gathered by NATIONAL PETROLEUM NEWS. Total stocks Sept. 14 were 47,813,000 gallons as compared with 47,683,000 gallons the previous week, an increase during the seven days of 130,000 gallons.

Gasoline shipments increased 2,400,000 gallons to 46,214,000 gallons. Refiners increased their production nearly 2,000,000 gallons to meet the more active demand.

Crude charges to stills averaged 345,901 barrels a day as compared with 336,317 the first week of the month. The increase for the week was 9,584 barrels daily average. At the same time partly refined oil

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended Sept. 14. Change in stocks figured from Aug. 17.

GASOLINE

	Gallons
Production	183,556,000
Shipments	182,513,000
Net change in stocks	+ 1,043,000
Ratio sales to production	99.4%

KEROSENE

	Gallons
Production	28,154,000
Shipments	28,324,000
Net change in stocks	— 170,000
Ratio sales to production	100.6%

STOVE DISTILLATE

	Gallons
Production	4,001,000
Shipments	3,961,000
Net change in stocks	+ 40,000
Ratio sales to production	99.0%

GAS OIL

	Gallons
Production	30,996,000
Shipments	32,447,000
Net change in stocks	— 1,451,000
Ratio sales to production	104.7%

FUEL OIL

	Gallons
Production	151,197,000
Shipments	141,480,000
Net change in stocks	+ 9,717,000
Ratio sales to production	93.6%

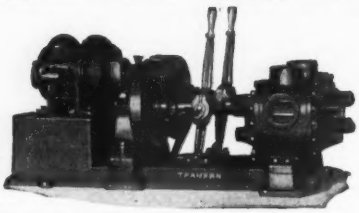
REG. TRADE MARK

TRAHERN PUMPS

REG. U.S. PAT. OFF.

for the bulk oil station

High Efficiency



Large Capacity

This Outfit Will Unload Three 8,000-Gallon Tank Cars Per Hour

The type shown above consists of two pumps mounted on one cast iron bed plate,—will hand'e either one or two liquids at the same time,—ope.ating equally well in either direction. This outfit is made in two sizes, No. 5 and No. 6. No. 5 having 3" suction and discharge openings and the No. 6 having 4" suction and discharge openings.

These pumps are built for belt, motor or engine drive and can be had from one to six pumps all mounted on one bed plate. Trahern pumps are built for long continuous service, free from breakdown.

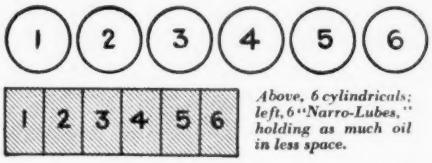
Geo. D. Roper Corporation Rockford Illinois

Pumps for Permanence

The...

"NARRO-LUBE"

...saves space



Above, 6 cylindricals; left, 6 "Narro-Lubes," holding as much oil in less space.

In a busy station, where space, time, neatness has "a price," these "Narro-Lube" oil service outfits are necessary. They furnish the neatest, cleanest, most compact way of storing and handling motor oils. *Strong*, and mechanically *good*, each tank well braced, each pump an accurate measurer—they sell at a minimum price.

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THE following is a partial list of the products which we are regularly supplying to the oil trade. Do not hesitate to send us your inquiry on any special weight or out of the ordinary equipment or any other special steel plate construction:

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Truck Tanks, oval, round, square, or semi-rectangular
Fuel Oil Truck Tanks, insulated and with heating arrangement
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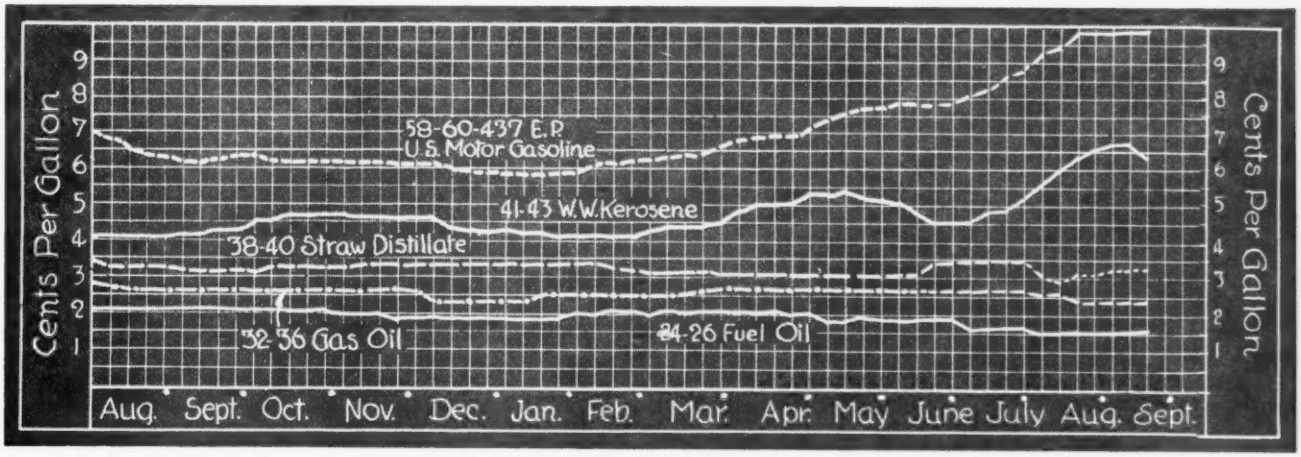
Current Prices of Principal Mid-Continent Refined Products



Prices shown are on Group 3 basis and extended to date shown in Refinery Market Tables Section of this issue

charges to stills were increased 6,196 barrels daily average to 21,566 barrels a day. The increase in crude runs was confined to the Texas group where refiners increased their runs nearly 12,000 barrels daily average to 96,480 barrels a day while other groups reported smaller runs. All groups reported increases in runs of partly refined oils.

The increase in gasoline shipments was well distributed through the field although the Kansas and Texas groups showed the largest percentages of increase. In these two states reductions were made in gasoline stocks. Kansas refiners reported withdrawal of 800,000 gallons from storage bringing stocks in that area to 7,623,000 gallons. In Texas the stock withdrawals totaled 326,000 gallons bringing reserves down to 13,555,000 gallons. Stocks at all reporting plants are nearly 8,000,000 gallons lower than a year ago when on Sept. 16 reserves were 55,485,000 gallons. In 1927 the lowest ebb of gasoline stocks at the plants of reporting companies was on Sept. 23 when the total was 54,778,000 gallons.

During the week under review kerosene stocks were lowered in Kansas and Louisiana-Arkansas but increased in other areas. All reporting plants showed an increase of 37,000 gallons. Stocks Sept. 14 were 13,144,000 gallons. In the last four weeks kerosene stocks have been reduced 170,000 gallons.

Shipments of stove distillate continued to increase, jumping 16.2 per cent to 1,343,000 gallons. Refiners increased their cut of this product 16 per cent to 1,151,000 gallons. Stocks were reduced 192,000 gallons to 5,920,000 gallons. A year ago refiners had built up a substantial reserve of stove distillate for the winter season and reported stocks of 14,337,000 gallons Sept. 16.

Gas oil stocks increased 647,000 gallons to 55,890,000 gallons. Shipments fell off slightly while production was being increased as a result of the higher crude runs. Current stocks of gas oil are more than 20,000,000 gallons below the level of stocks a year ago since cracking plants have been working more consistently.

Shipments of fuel oil jumped 19.3 per cent or nearly 6,000,000 gallons to 37,800,000 gallons. The increase in production totaled 3,300,000 gallons and was just enough to keep stocks from being cut. Total stocks Sept. 14 were 172,881,000 gallons.

Texas Red Hat Movement Boosted by Little

FORT WORTH, Sept. 16.—D. E. Little, president of the Litwood Oil & Grease Co., of Fort Worth, who also is a director of the Independent Oil Men of America with headquarters at 205 West Wacker drive, Chicago, recently organized the Red Hat Oil Corp., of Texas. It is to be the oil compounding company for the I.O.M.A. members of Texas.

According to the plan, each member in Texas buys stock in the new corporation and thus shares in the profits of it. The mutually owned company will compound Red Hat motor oil and manufacture Red Hat grease. Mr. Little has divided the state into 30 districts and has set about to establish one I.O.M.A. member in each of the 30 districts.

By a special agreement the Texas members charge themselves 2 cents royalty on each gallon of motor oil when it is sold, thus forming a perpetual fund to be used in advertising. Each member obligates himself to cover his own territory adequately with road signs and posters and to identify his service stations with the I.O.M.A. movement.

LOS ANGELES, Sept. 14.—Albert A. Scheg, general manager of the California Oil World, Los Angeles, and Miss Clara G. Bender, were married at the Presbyterian church, Pasadena, Saturday morning Sept. 8 and will spend about three weeks touring the state before returning home.

The Texas Co. Is Building Four New Refineries

CLEVELAND, Sept. 16.—The refinery at San Antonio, of which an announcement was published on page 20 of the Sept. 5 issue of NATIONAL PETROLEUM NEWS, is only one of four new plants projected by The Texas Co., according to R. C. Holmes, president.

The other three refineries are to be built at Cody, Wyo., Amarillo and El Paso, Tex. The size of the plants is to be governed by the crude available and the marketing territory it is possible to reach from the refinery at an economical freight rate or by truck. The company's present refinery at Lockport, Ill., is to be increased by 7,000 barrels daily capacity, which will mean about doubling it.

An 8-inch pipe line will be laid from Tulsa to Lockport to furnish additional crude from the Mid-Continent to the refinery, and branch lines will be laid from the company's present systems to supply crude to the new plants. The Amarillo, San Antonio and Cody refineries are to have about 3000-barrel capacity a day each and the El Paso plant about 1500 barrels.

Refinery Runs Curtailed

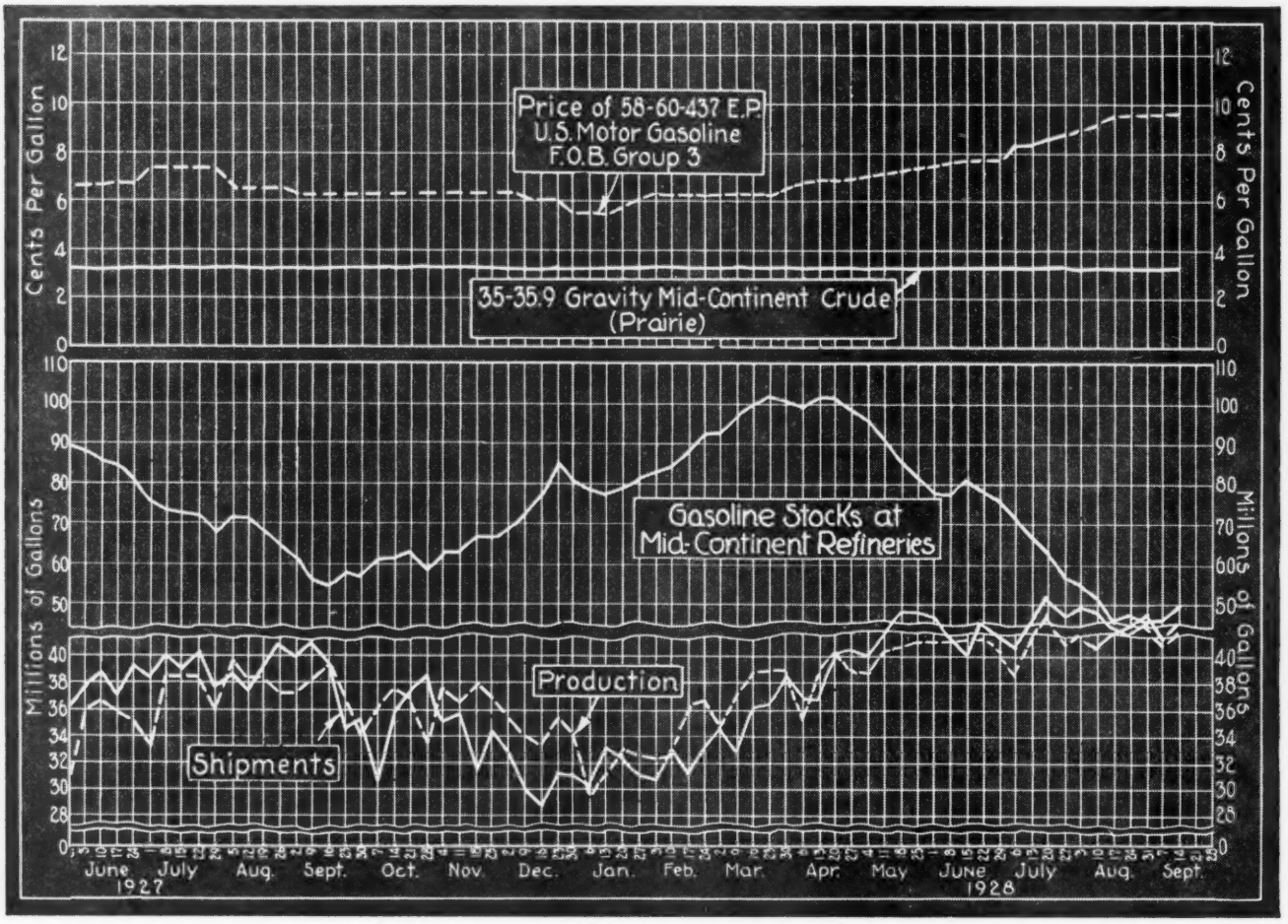
(By Telegraph)

HOUSTON, Sept. 17.—Confirmation is made of reports that Humble Oil & Refining Co., is reducing crude runs at its McCamey and Ingleside, Texas, refineries to balance fuel requirements now that the peak of the 1928 gasoline consuming season has passed.

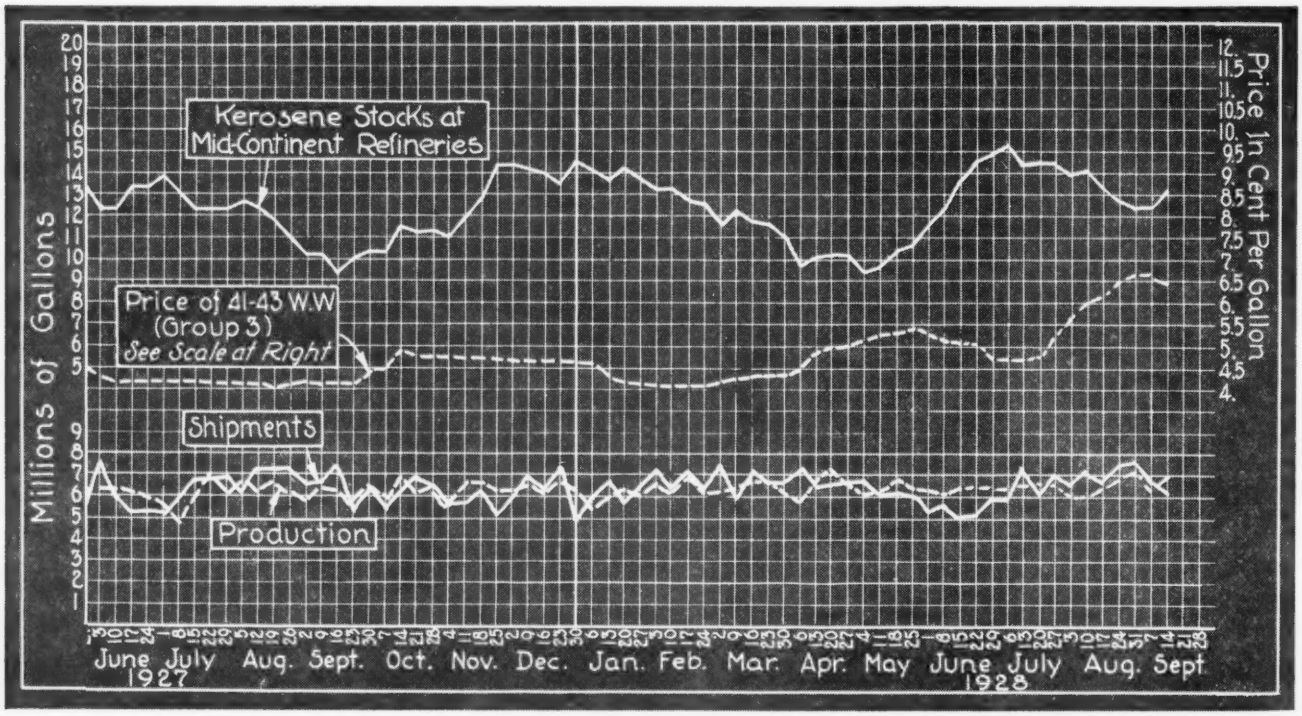
Both plants operate on West Texas sulfur crude. McCamey runs were reduced from 18,000 to 9,000 barrels of crude daily, effective Sept. 16. Ingleside runs at the newly completed plant in the Corpus Christi district were cut from 10,000 to 6,000 barrels daily.

Barometer of Mid-Continent Refinery Market—Week Ending September 14

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 82 Plants to National Petroleum News


Cents Per Gallon
Price of 58-60-437 E.P. U.S. Motor Gasoline F.O.B. Group 3
35-35.9 Gravity Mid-Continent Crude (Prairie)
Millions of Gallons
Gasoline Stocks at Mid-Continent Refineries
Production
Shipments
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.
1927
1928

Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date as shown in the table on the opposite page


Millions of Gallons
Kerosene Stocks at Mid-Continent Refineries
Price of 41-43 W.W. (Group 3) See Scale at Right
Shipments
Production
Price In Cent Per Gallon
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.
1927
1928

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Build your business on our reputation for satisfactory petroleum products

Empire Oil & Refining Company

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GENERAL SALES OFFICES—TULSA, OKLA.

NEW YORK PHILADELPHIA CLEVELAND CHICAGO ST. PAUL
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Barometer of Mid-Continent Refinery Market—Week Ending September 14

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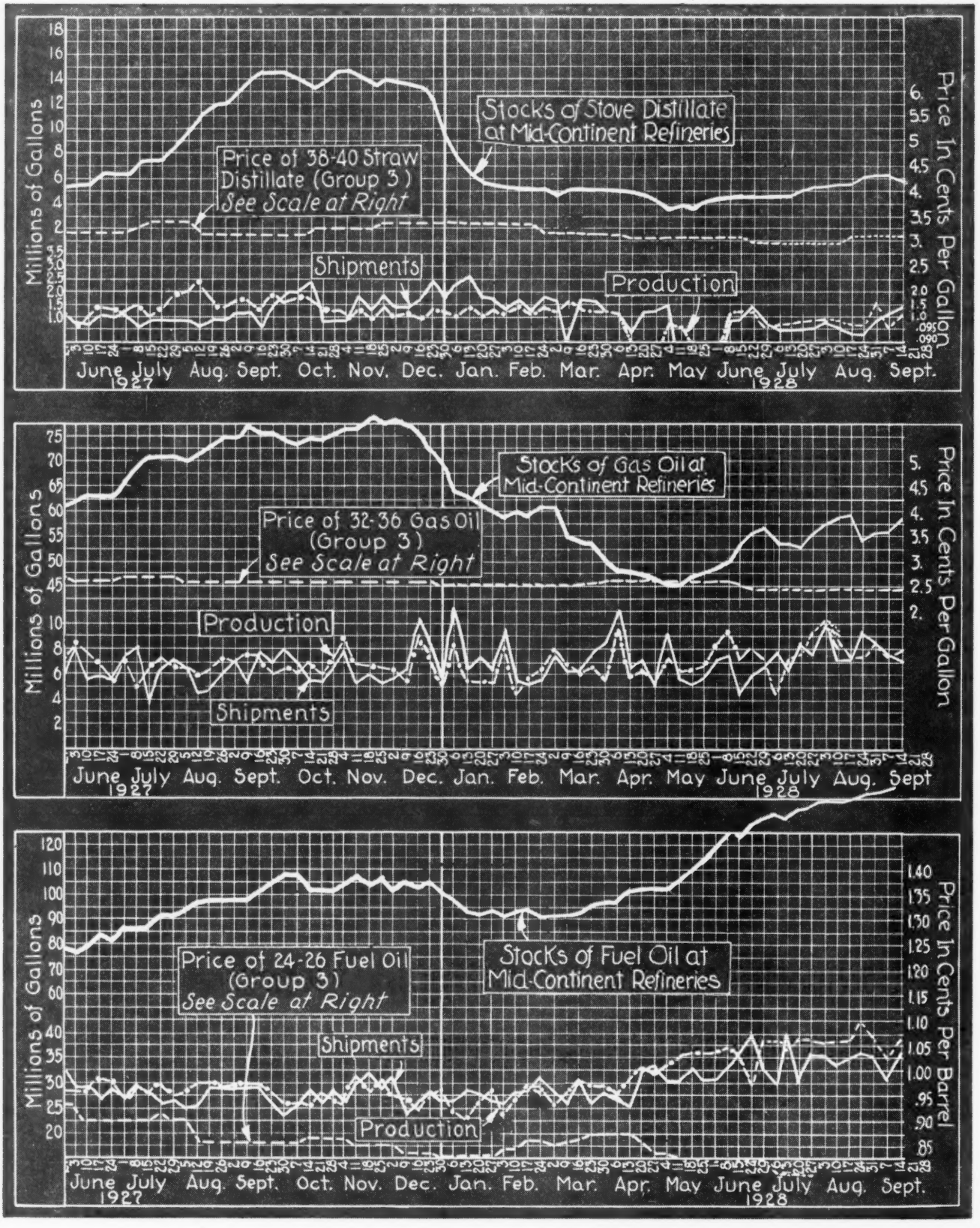
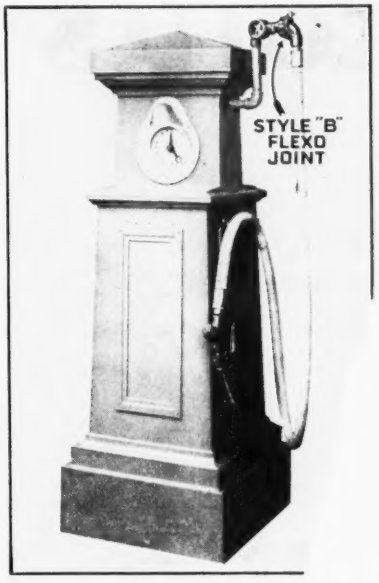

Millions of Gallons
Price In Cents Per Gallon
Stocks of Stove Distillate at Mid-Continent Refineries
Price of 38-40 Straw Distillate (Group 3) See Scale at Right
Shipments
Production
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.
1927
1928
Millions of Gallons
Price In Cents Per Gallon
Stocks of Gas Oil at Mid-Continent Refineries
Price of 32-36 Gas Oil (Group 3) See Scale at Right
Production
Shipments
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept
1927
1928
Millions of Gallons
Price In Cents Per Barrel
Price of 24-26 Fuel Oil (Group 3) See Scale at Right
Stocks of Fuel Oil at Mid-Continent Refineries
Shipments
Production
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.
1927
1928

A Better Swin



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FINING COMPANY, INC.

Sinclair Gasoline and H-C Gasoline

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Refinery - Tank Wagon Markets

National Petroleum News

Mid-Continent Gasoline Price Range Widens; Domestic Demand Lighter

Staff Special
TULSA, Sept. 15

THE Mid-Continent gasoline market was unsettled the second week of September. Demand from the domestic trade was lighter and a wide range of prices were reported from various parts of the territory. The Group 3 price structure remained uniformally steady, although lower prices were broadcast from other areas with the quotations made on a Group 3 freight basis.

The only export activity was the purchase of 500,000 gallons of gasoline in north Texas.

Natural gasolines were in active demand near the end of the week and prices moved upward.

Kerosenes were in less demand for spot shipment but stocks in all areas were still comparatively low. Distillates gained in activity. Gas oils were steady. Fuel oils were quiet with demand increasing for the higher gravity grades.

Neutral oils were unchanged in prices with shipments fair. Bright stock was stronger. Wax was scarce at higher price levels.

Gasolines

One purchase of 500,000 gallons of 64-66, 375 end point gasoline for export in north Texas was reported the week of Sept. 9-15. The price was not made public but unconfirmed reports indicated the goods went at 9.75 cents. The export company making the purchase also had options on some goods in Oklahoma but when the purchase was finally negotiated in north Texas the option on the Oklahoma goods was not taken up.

Domestic demand for all grades of gasoline was slower than it had been for some time. Jobbers continued to take out large quantities on contracts but they were limiting their spot purchases to as small amounts as possible and were buying from hand to mouth. This action would naturally be expected in the face of the present market position. Low quotations have been broadcast from west Texas and a few points in north Texas, as well as closer to the Chicago marketing center. Some of these quotations have been for gasolines of a fairly good grade. Some of the prices sent out, however, have been from marketers who have working arrangements with west Texas plants, and in a case or two from those who are seeking to cover on short sales made at low prices around Sept. 1.

A majority of the Oklahoma and Kansas refiners have not met these low quotations. Three or four refiners who have made sales to marketers at these competitive prices apparently have done so because they operate on a day to day basis with little storage capacity at their plants and because they must depend on the spot market demand to move their production.

The Magnolia Petroleum Co. early in the week bought a quantity of gasoline from a plant in southern Oklahoma at 9.25 cents a gallon, the goods to be shipped to Magnolia's stations in the state.

Many of the north Texas refiners have reduced crude runs in an effort to stabilize the market in that district, but with virtually no export activity and only a small amount of domestic interest prices have shown no marked tendency to rally from the break which occurred early in the month.

The Arkansas and north Louisiana refiners report their business has been holding up well although competition from other areas has caused slight price reductions this week.

Natural Gasolines

New life was injected into the natural gasoline market just before Sept. 15 when two large manufacturers began to buy gasolines. One company known to have considerable buying power during the week purchased approximately 200 cars of gasoline for both prompt and over the month shipment. The other company prior to the end of the week had bought 25 to 30 cars of gasoline and was reported to be seeking more goods.

The buying was well scattered through Oklahoma and north Texas and virtually all surplus goods for spot shipment were taken. Prices by Sept. 15 had recovered all the ground lost earlier in the week, with grades A and AA, the ones in most active demand, setting the pace.

Kerosenes

A lighter demand for kerosenes was noticed in several parts of the middle west during the week. Other areas continued to consume approximately the same amounts as in the last several weeks. Goods were more easily obtained and prices lost ground fractionally. At the half way mark for the month 41-43 w. w. grade in Oklahoma was pegged at 6.50 cents, although a few refiners who have virtually no kerosene except for their own trade were quoting nominal prices of 6.75 cents. Prices in north Texas were down 0.125 cent a gallon with demand lighter.

Stocks of kerosene are still comparatively low in all areas of the Mid-Continent with the exception of Kansas, and refiners have been on the lookout for any export buying which might have a tendency to stiffen the market materially before winter.

Stove Distillate

Stove distillate has been in more active demand in all areas. Kansas refiners have been enoying a good business at prices generally unchanged

Sensational Growth

Most of us remember the sensational growth of the beanstalk in the childs' fairy tale. The modern-day sales records of Shell Motor Oil are almost as striking.

Jobbers handling Shell Motor Oil sold as many gallons during the first five months of 1928 as during the entire year 1927.

Jobbers and dealers who made the "Change to Shell" have been well rewarded for their foresight. Even now it is not too late to benefit by the growing public preference for Shell Motor Oil. The business-winning popularity of the Shell name and the business-holding quality of the oil itself form a profitable combination.

You are invited to inquire about the territorities in which Shell franchises are still available.

ROXANA PETROLEUM CORPORATION • • SHELL BLDG. • • SHELL CORNER • • ST. LOUIS

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295

from those which have prevailed for several weeks. The Oklahoma refiners also have shipped larger quantities while they have increased their production accordingly. Prices in Texas have advanced slightly with goods comparatively scarce. The bulk of the buying, according to several of the trade, has been done by jobbers who are filling their distillate storage tanks in anticipation of higher prices this winter and also to be prepared when the seasonal demand opens.

Gas Oil

No changes have been made in the prices for gas oil. Inquiries continued to be received for straw color, zero cold test goods for this winter. Arkansas and Louisiana refiners received the majority of these inquiries, although a few came into Oklahoma. Ordinary dark gas oil which can be cracked, was still in demand with two or three large refiners in the market. Cracked gas oil was steady in demand from industrial users.

Fuel Oils

Higher gravity fuel oils in Oklahoma were in more active demand but prices remained generally unchanged. Several fuel oil consumers are gradually turning to the higher gravity oil as winter approaches although many of them are still taking out sizable quantities of lower grades. Competition from west Texas and from plants which are operating on west Texas crude continued to be felt keenly in Group 3 as well as in Kansas.

Neutral Oils

No changes were made in neutral oil prices. Demand was good, a majority of refiners reported. Jobbers were buying some of their winter requirements and several makers reported their stocks were being reduced.

Cylinder Stocks

An advance of 1 cent in the price of 150-160 vis. at 210 bright stock was made early in the week by several Oklahoma refiners. Two or three refiners late in the first week of September advanced their prices to 26 cents, and those who had previously been accepting business at 25 cents a gallon had met the advance by Sept. 12.

A check of refiners making bright stock indicates their stocks are low and demand continues to hold up well. Much of the goods being shipped at present, however, was bought early in the spring at 22 to 23 cents a gallon. Many large jobbers took advantage of those low prices to cover their requirements for the year.

Wax

Quotations for 124-126 white crude scale in Oklahoma were 5 to 5.125 cents the second week in September. Sales were comparatively light, due largely to the fact that refiners have sold virtually all their production for the month, and two or three are committed until late in October. Stocks in Oklahoma are low.

Chicago Resale Market

Gasoline Demand Continues Good

Staff Special
CHICAGO, Sept. 15

MOST of the Chicago trade continued to enjoy a good demand for gasoline, the week ended Sept. 15 with by far the bulk of the movement on contract orders. Several refiners reported that approximately 90 per cent of their business was on a contract basis. The spot demand was only fair most of the week. Most sellers reported jobbers were buying only for current requirements and were doing considerable shopping.

Oklahoma refiners continued to hold their U. S. Motor gasoline at 9.75 cents to the jobbing trade. Gasoline continued to come out of north and west Texas at prices 0.25 to 0.50 cent under the Oklahoma price. The bulk of movement on 58-60 U. S. Motor was at 9.50 to 9.75 cents.

In many cases, especially the west Texas gasoline, the cheaper goods do not pass the doctor and corrosion test. A noticeable stiffening was apparent in the north Texas market near the end of the week. Several sellers reported this was due to a considerable amount of export and domstic buying by some of the larger refiners in the southwest.

Marketers in the Chicago territory report being able to buy Oklahoma U. S. Motor gasoline at 9.25 cents in some quarters. This gasoline, in most cases, was obtained from refiners who have no stations of their own and depend on the spot market as an outlet. One local refiner reported moving some goods at 9.50 cents to meet competition.

High test gasolines passed a comparatively quiet week. The demand was seasonal, most of the trade reported, and prices remained at approximately the same levels as in the previous week. Some sellers reduced their prices fractionally Sept. 11. The 60-62, 437 e. p. gasoline opened at 9.875 to 10 cents Sept. 10 and moved at 9.75 to 10 cents thereafter. Gasoline of 60-62, 400 e. p. moved at 10.125 to 10.375 cents most of the week, after opening Sept. 11 at 10.25 to 10.375 cents. Sales of 64-66, 375 e. p. gasoline were reported at 10.50 to 11.25 cents, but the bulk of goods moved at 10.75 to 11 cents.

Kerosene demand was good in most quarters, although several sellers said it was not so heavy as last week. The going market for 41-43 w.w. kerosene remained mostly at 6.50 cents. A few sellers were getting 6.625 cents and in some cases goods were moved at 6.375 cents. Several refiners reported they were still out of the market on kerosene. Some 41-43 w.w. kerosene was moved to Michigan points out of Toledo refineries at 7.25 and 7.50 cents f.o.b. refinery, according to reports received here.

Distillates showed the most strength of the heavier oils and with a steady demand prices were approximately .125 cents higher as the week closed. The 38-40 straw, which moved at 3.125 to 3.25 cents most of the week, closed at 3.25 cents flat Sept. 15. Sales were reported up to 3.50 cents.

Gas oils were unchanged in price. Ordinary 32-36 dark moved at 2.50 to 2.625 cents; 32-36 dark zero at 2.625 to 2.75 cents and the 32-36 straw zero grade at 2.75 to 3 cents. Most sellers reported comparative scarcity of 32-36 straw zero.

Fractional price advances were made in the lighter grades of fuel oil while heavier fuels were generally unchanged. More demand was reported for 28-30 zero fuel and it was 2.50 cents higher by Sept. 15. This added demand was coming mostly from distributors of home burner oils, the trade reported. These buyers were reported to be storing this fuel in anticipation of winter requirements. Most sellers reported a steady demand from industrial concerns.

The 28-30 fuel moved at $0.80 to $0.875 Sept. 15 after holding at $0.80 to $0.85 previously. Fuel of 24-26 gravity sold mostly at $0.625 to $0.675. Low sulfur 18-22 fuel continued to move mostly at $0.575 to $0.625 while high sulfur 18-22 sold at $0.525 to $0.55.

Shower periods are likely during the latter half of next week in Standard Oil Co. of Indiana territory with temperatures near normal all week, says the official forecast.

Acme Petroleum Co. Moves To Mather Tower

CHICAGO, Sept. 15.—Acme Petroleum Co., headed by C. O. Beroth, which has maintained offices in the Blum building at 624 S. Michigan ave., for four years has moved to the north end of the boulevard and taken up quarters at 75 East Wacker drive, in the Alonzo Mather tower.

Mather tower is one of the most spectacular structures on the Chicago sky line, and offers to Chicago visitors the loftiest accessible spot from which to view the city and the lake. The transfer of Acme's office was effective on Sept. 15.

Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

PENNSYLVANIA	Prices Sept. 17	Prices Sept. 10	Prices Sept. 4
52-54 Napthha	11.50 –11.75	11.50 –12.00	11.50 –12.00
54-56 Naphtha	11.75	11.50 –12.00	11.75 –12.00
58-60 U.S. Motor 437 e.p.	12.00 –12.50	12.00 –12.50	12.00 –12.50
60-62 400-410 e.p. gasoline	12.50 –12.75	12.50 –13.00	12.75 –13.00
64-66 390 e.p. gasoline	13.50 –13.75	13.625–14.00	13.75 –14.00
68-70 Str-run gas. 350-360 e.p.	13.50 –14.50	15.00	14.50 –15.50
OHIO (Quotation of S. O. Ohio.)			
58-60 U.S.Motor,delivered in Ohio, tax to be added	13.25	13.25	13.00
OKLAHOMA			
48-50 540 e.p. naphtha	†9.00 – 9.125	†9.00 – 9.125	†9.00 – 9.125
50-52 450 e.p. naphtha	†9.00 – 9.125	†9.00 – 9.125	†9.00 – 9.125
56-58 450 e.p. gasoline	9.375– 9.50	9.375– 9.50	9.375– 9.50
58-60 450 e.p. gasoline	9.50	9.50	9.50
64-66 390 e.p. gasoline	10.50 –10.75	10.50 –10.75	10.50 –10.75
68-70 350-360 e.p. gasoline	11.00 –11.25	11.00	11.00
OKLAHOMA (Weighted Average Prices)			
58-60 U.S. Motor, 437 e.p.	9.7475	9.7500	9.7458
60-62 437 e.p. gasoline	9.8929	9.7917	9.9464
60-62 400 e.p. gasoline	10.4375	10.3750	10.3333
64-66 375 e.p. gasoline	11.0000	11.0000	11.0000
In this issue, all above weighted average prices are effective on Monday on the dates shown at the top of the columns.			
KANSAS (F. O. B. refinery Kansas destination)			
58-60 U.S. Motor 437 e.p.	9.875	9.875	9.875
60-62 400 e.p. gasoline	10.50	10.50	10.50
64-66 375 e.p. gasoline	10.75	10.75	10.75
NORTH TEXAS			
48-52 450 e.p. naphtha	†8.75	†8.75	†8.75
56-58 450 e.p. gasoline	†8.75	†8.75	†8.75
58-60 450 e.p. gasoline	†8.75 – 9.00	†8.75 – 9.00	†8.75 – 9.00
58-60 U.S. Motor 437 e.p.	9.125– 9.25	9.25	9.125– 9.25
60-62 400 e.p. gasoline	9.75	10.00	10.00 –10.25
64-66 390 e.p. gasoline	10.00 –10.25	10.25	10.375
64-66 375 e.p. gasoline	10.25 –10.50	10.50	10.50 –10.625
68-70 350-360 e.p. gasoline	10.75 –11.00	10.75 –11.00	10.75 –11.00
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
58-60 U.S. Motor gasoline	10.00	10.25	10.25 –10.50
ARKANSAS (Arkansas destination only)			
56-58 450 e.p. gasoline	9.75	9.75	9.75
58-60 450 e.p. gasoline	10.00	10.00	10.00
58-60 U.S. Motor 437 e.p.	10.00	10.25	10.25
‡CALIFORNIA			
54-58 U.S. Motor 437 e.p	9.50 –12.50	9.00 –12.50	9.00 –12.50
58-61 U.S. Motor 437 e.p.	10.00 –13.50	9.50 –13.50	9.50 –13.50
42-45 Eng. dis. 445-480 e.p.	7.00 – 8.00	7.00 – 8.00	7.00 – 8.00

‡3c tax to be added to California gasoline prices if used in state.

NATURAL GASOLINE

(Note. End point of all grades, not over 375 F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

OKLAHOMA			
Grade AA, 80-87.9, 90% Recovery	9.00 – 9.25	8.75 – 9.00	9.25 – 9.75
Grade A, 72-79.9, 90% Recovery	9.00 – 9.25	8.75 – 9.00	9.25 – 9.75
Grade BB, 84-92, 85% Recovery	9.00	8.75	9.25 – 9.75
Grade B, 76-83.9, 85% Recovery	9.00	8.75	9.25 – 9.75
Grade C, 80-92, 78% Recovery	8.75	8.50	9.25 – 9.75
NORTH TEXAS (F. O. B. Breckenridge)			
Grade AA, 80-87.9, 90% Recovery	9.125– 9.25	8.75 – 9.00	9.25 – 9.75
Grade A, 72-79.9, 90% Recovery	9.125– 9.25	8.75 – 9.00	9.25 – 9.75
Grade BB, 84-92, 85% Recovery	9.00	8.75	9.25 – 9.75
Grade B, 76-83.9, 85% Recovery	9.00	8.75	9.25 – 9.75
Grade C, 80-92, 78% Recovery	8.75	8.50	9.25 – 9.75
NORTH LOUISIANA (F. O. B. Monroe District)			
Grade AA	†9.50	†9.50	†10.25
Grade BB	†9.25	†9.25	†10.25
Grade C	†9.00	†9.00	†10.25
CALIFORNIA			
75-85, 375-390 e.p. blend	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50

MOTOR FUEL BLENDS

OKLAHOMA			
64-66 Blend 437 e.p.	9.25 – 9.50	9.25 – 9.50	none available

BURNING OILS

PENNSYLVANIA			
45 w.w. kerosene	7.75 – 8.25	7.75 – 8.25	7.50 – 8.00
46 w.w. kerosene	8.125– 9.00	8.125– 8.75	8.00 – 9.00
47 w.w. kerosene	8.50 – 9.25	8.75 – 9.00	8.75 – 9.00
300 mineral seal	7.50 – 7.75	7.50 – 7.75	7.50 – 7.75

†Prices nominal **††Only one refiner quoting** ***Quotations only**

OKLAHOMA	Prices Sept. 17	Prices Sept. 10	Prices Sept. 4
41-43 w.w. kerosene	6.25 – 6.50	6.50 – 6.75	6.50 – 6.75
42-44 w.w. kerosene	6.75 – 7.00	7.00 – 7.25	7.00 – 7.25
KANSAS (F. O. B. refinery Kansas destination)			
41-43 w.w. kerosene	6.875– 7.00	6.875– 7.00	6.875– 7.00
42-44 w.w. kerosene	7.25	7.25	7.25
NORTH TEXAS			
40-42 w.w. kerosene	5.875– 6.00	6.00	6.00
41-43 w.w. kerosene	6.125– 6.25	6.25	6.25
NORTH LOUISIANA (N. La. Ark. and Miss. destination)			
41-43 w.w. kerosene	7.00	7.00	7.00
ARKANSAS (Arkansas destination only)			
42-44 kerosene	7.25	7.25	7.00 – 7.25
CALIFORNIA			
38-40 w.w. kerosene	5.75 – 6.50	5.75 – 6.50	5.75 – 6.50

NEUTRAL OIL

Vis.	Color			
PENNSYLVANIA		(Viscosity at 70°F.)		
200	No. 3 Assoc. Filt.	30.00 –32.00	30.00 –32.00	30.00 –32.00
180	No. 3 Assoc. Filt.	28.50 –30.00	29.00 –30.00	29.00 –30.00
150	No. 3 Assoc. Filt.	24.00 –26.00	24.50 –26.50	24.25 –26.50
		(Non Viscous)		
34 Grav. 330-340 Flash		6.75 – 9.00	6.75 – 9.00	6.75 – 9.00
36 Min. Neut, 300-305 Flash		6.00 – 8.50	6.00 – 8.50	6.00 – 8.50
****OKLAHOMA**				
Vis.	Color	(Viscosity at 100°F.)		
100	No. 2	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
150	No. 3	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
150	No. 4	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
180	No. 3	9.00 –10.00	9.00 –10.00	9.00 –10.00
180	No. 4	9.50 – 9.75	9.50 – 9.75	9.50 – 9.75
180	No. 5	9.25 – 9.75	9.25 – 9.75	9.25 – 9.75
200	No. 3	9.625–11.00	9.625–11.00	9.625–11.00
200	No. 4	9.50 –10.75	9.50 –10.75	9.50 –10.75
200	No. 5	8.50 –10.00	8.50 –10.00	8.50 –10.00
220	No. 3	12.50 –13.50	12.50 –13.50	12.50 –13.50
220	No. 4	12.25 –12.50	12.25 –12.50	12.25 –12.50
220	No. 5	11.50 –12.00	11.50 –12.00	11.50 –12.00
240	No. 3	13.50 –14.00	13.50 –14.00	13.50 –14.00
240	No. 4	13.25 –13.50	13.25 –13.50	13.25 –13.50
240	No. 5	12.00 –13.00	12.00 –13.00	12.00 –13.00
280	No. 3	15.50 –16.50	15.50 –16.50	15.50 –16.50
280	No. 4	15.25	15.25	15.25
280	No. 5	14.00 –15.00	14.00 –15.00	14.00 –15.00
300	No. 5-6	17.00	17.00	17.00
GULF COASTAL				
Vis.	Color	(Viscosity at 100°F., pour test 0)		
100	No. 2 Unfilt. Pale	7.00 – 7.50	7.25 – 7.50	7.25 – 7.50
200	No. 3 Unfilt. Pale	10.00 –10.75	10.50 –10.75	10.50 –10.75
300	No. 3 Unfilt. Pale	11.00 –11.75	11.50 –11.75	11.50 –11.75
500	No. 3½ Unfilt. Pale	12.50 –13.50	13.50 –13.75	13.50 –13.75
750	No. 4 Unfilt. Pale	15.50 –16.00	15.75 –16.00	15.75 –16.00
200	No. 5½ Red Oil	8.25 – 8.75	8.50 – 8.75	8.50 – 8.75
300	No. 5½ Red Oil	9.00 – 9.75	9.50 – 9.75	9.50 – 9.75
500	No. 6 Red Oil	10.50 –11.25	11.00 –11.25	11.00 –11.25
750	No. 6 Red Oil	13.50 –14.00	13.75 –14.00	13.75 –14.00
CALIFORNIA				
Vis.	Color	(Viscosity at 100°F.)		
100	No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200	No. 3	11.50 –12.00	11.50 –12.00	11.50 –12.00
300	No. 3	13.00 –13.50	13.00 –13.50	13.00 –13.50
450	No. 3	15.50 –16.00	15.50 –16.00	15.50 –16.00
550	No. 3	16.50 –17.00	16.50 –17.00	16.50 –17.00
600	No. 3	17.00 –17.50	17.00 –17.50	17.00 –17.50
200	No. 5	11.00 –11.50	11.00 –11.50	11.00 –11.50
300	No. 5	12.00 –12.50	12.00 –12.50	12.00 –12.50
400	No. 5	14.00 –14.50	14.00 –14.50	14.00 –14.50
500	No. 5	15.00 –15.50	15.00 –15.50	15.00 –15.50
600	No. 5	16.00 –16.50	16.00 –16.50	16.00 –16.50
700	No. 7	18.00 –18.50	18.00 –18.50	18.00 –18.50

CYLINDER STOCKS

****OKLAHOMA**			
190-200 Vis.at 210° Brt.St.	31.00 –32.00	31.00 –32.00	31.00 –32.00
150-160 Vis.at210° Brt.St.	26.00	25.00 –26.00	25.00 –26.00
600 E.St.140-150Vis.-210°	17.00 –18.00	17.00 –18.00	17.00 –18.00
600 St. Ref. Olive Green	8.00 –10.00	8.00 –10.00	8.00 –10.00
600 St. Ref. Dark Green	6.00 – 8.00	6.00 – 8.00	6.00 – 8.00
Black Oil	5.00	5.00	5.00
PENNSYLVANIA	(1-inch Immersion Test)		
600 Steam Refined	13.50 –14.25	13.00 –13.50	13.25 –14.00
650 Steam Refined	15.00 –16.50	14.50 –16.50	14.50 –16.50
600 Flash	18.50 –19.00	18.50 –19.00	18.50 –19.00
625 Flash	28.00 –28.50	27.50 –29.00	27.50 –29.00
600 Warren E	19.00 –20.00	19.00 –20.00	19.00 –20.00
600 Oil City E	17.00 –18.50	17.00 –18.50	17.00 –18.50
600 D Filtered	††24.00	††24.00	23.50 –24.00
Cold Test Stock, 40-50 p. p., 140-150 vis. at 210° 540-550 flash, No.8color	36.00 –36.50	36.50 –37.00	36.50 –37.00
40-50 p.p., 140-150 vis. at 210°, 540-550 flash, No. 6-6½ color diluted	34.00 –34.50	34.50 –35.00	34.50 –35.00

****Represents both sales and quotations**

Even small capacity tanks can be efficiently and economically equipped with "power-pump" discharge as is shown in this 600 gal., 3 compartment job mounted on a Reo "Speed truck".

Fuel Oil Handled at a Real Profit

Let's talk some plain facts—there is real profit in fuel oil if you are equipped to handle it—but you simply can't get the *maximum of profit* if you handle fuel oil in tanks not designed for the purpose.

Just figure it out—the shorter the time required for the dump the lower the cost for man and truck time per gallon—more trips per day—naturally more profit per truck. A Farrell will discharge more gallons per given time than any other method—*this means extra profit.*

The Farrell Power Pump Discharge provides a unit that is built to stand the "gaff" of 24 hour continual work—to handle any gravity of fuel oil—over any length of hose—and to pump it through (regardless of weather) in a space of time so short that every gallon *carries an extra profit for you.*

Farrell Truck Tanks have made records—their performances have never been beaten—they are rapidly becoming the *standard* equipment for the large fuel oil handlers. *Let Farrell build your fuel oil tanks—write for details.*

FARRELL MANUFACTURING CO.—JOLIET, ILL.

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This 2100 gal. tank has a record of over 8 months, day and night service, covering over 12,000 miles, delivering approx. 900,000 gal. of heavy fuel. 2100 gal. dump thru pump in approx. 15 minutes. Not one cent spent for repairs.

Refinery Markets on Wax and Heavy Oil Products

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

WAX

PENNSYLVANIA	Prices Sept. 17	Prices Sept. 10	Prices Sept. 4
Per pound, New York			
122-124 white crude scale	5.50 – 5.75	5.25	5.00 – 5.25
124-126 white crude scale	5.50 – 5.75	5.25	5.25
OKLAHOMA			
**124-126 White Crude Scale	5.00 – 5.125	5.00	5.00
CALIFORNIA			
White crude scale, per pound, ton lots	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50

FUEL OIL

PENNSYLVANIA			
36-40 fuel oil	4.50 – 4.75	4.50 – 4.75	4.625– 5.00
30-34 fuel oil	4.25	4.25	4.25 – 4.50
28-32 fuel oil	4.125	4.125– 4.25	4.125– 4.375
OKLAHOMA			
38-40 straw distillate	3.25 – 3.375	3.25 – 3.375	3.25
36-38 straw distillate	3.00 – 3.125	3.00 – 3.125	3.00
32-36 gas oil, straw	†2.50 – 2.75	†2.50 – 2.75	†2.50 – 2.75
32-36 dark gas oil	2.375– 2.50	2.375– 2.50	2.375– 2.50
28-30 fuel oil (in bbls.)	$0.85 –$0.875	$0.85 –$0.875	$0.85 – 0.875
26-28 fuel oil (in bbls.)	$0.675–$0.725	$0.675–$0.725	$0.675– 0.725
24-26 fuel oil (in bbls.)	$0.65 –$0.675	*$0.65–$0.675	*$0.65 – 0.675
22-26 fuel oil (in bbls.)	$0.575–$0.625	*$0.575–$0.625	*$0.575– 0.625
18-22 fuel oil (in bbls.)	$0.55 –$0.60	*$0.55 –$0.60	*$0.55 – 0.60
16-18 fuel oil (in bbls.)	$0.55	*$0.55	*$0.55
14-16 fuel oil (in bbls.)	$0.55	*$0.55	*$0.55
KANSAS (F. O. B. refinery Kansas destination.)			
38-40 straw distillate	3.50 – 3.625	3.50 – 3.625	3.50 – 3.625
36-38 straw distillate	3.125– 3.375	3.125– 3.375	3.125– 3.375
32-36 gas oil	2.625– 2.75	2.625– 2.75	2.625– 2.75
24-26 fuel oil	*$0.75 –$0.80	*$0.75 –$0.80	$0.75 – 0.80
18-22 fuel oil	*$0.70	*$0.70	$0.70
NORTH TEXAS			
38-40 straw distillate	3.125– 3.375	3.125	3.00 – 3.125
32-36 gas oil, cracked	2.375– 2.50	2.375– 2.50	2.375– 2.50
32-36 gas oil, uncracked	2.375– 2.50	2.375– 2.50	2.375– 2.50
24-26 fuel oil (in bbls.)	$0.55 –$0.575	$0.55	$0.525– 0.55

†Prices Nominal ††Only One Refiner Quoting *Quotations only

GULF COASTAL	Prices Sept. 17	Prices Sept. 10	Prices Sept. 4
Fuel (in bbls.)	$1.20 –$1.25	$1.20 –$1.25	$1.20 –$1.25
Gas oil	4.25 – 4.375	4.25 – 4.375	4.25 – 4.375
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
32-36 gas oil, dark	2.625– 2.875	2.625– 2.875	2.625– 2.875
32-36 gas oil, straw	2.75 – 3.00	2.75 – 3.00	2.75 – 3.00
16-20 fuel oil (in bbls.)	$0.70	$0.70	$0.70
ARKANSAS (Arkansas destination only)			
32-36 gas oil, straw	3.00 – 3.25	3.00 – 3.25	3.00 – 3.25
32-36 gas oil	2.75 – 3.00	2.75 – 3.00	2.75 – 3.00
28-32 gas oil	2.75	2.75	2.75
Road Oil	$1.15	$1.15	$1.15
CALIFORNIA (F. O. B. San Joaquin Valley. At San Francisco, 4c per bbl. more)			
14-18 fuel oil (in bbls.)	$0.65 –$0.70	$0.65 –$0.70	$0.65 –$0.70
14-18 Bunker oil (in bbls.)	$0.80 –$1.00	$0.80 –$1.00	$0.80 –$1.00
30-34 gas oil (in bbls.)	$1.00 –$1.20	$1.00 –$1.20	$1.00 –$1.20
27 Plus Diesel oil (in bbls.)	$0.90 –$1.00	$0.90 –$1.00	$0.90 –$1.00

PETROLATUMS

PENNSYLVANIA (In barrels, carload lots, f.o.b. refinery. In tank cars ½c to ¾c per pound less.) Quotations of only one refiner on all grades except red petrolatum which is quoted by two refiners.

Snow White	8.625	8.50	8.50
Lily White	7.625	7.50	7.50
Cream White	6.625	6.50	6.50
Light Amber	3.625	3.50	3.50
Amber	3.375	3.25	3.25
Red	2.375– 3.125	2.375– 3.00	2.375– 3.00

PETROLEUM COKE

****OKLAHOMA**

(Per ton in car lots)

Lump	$4.50 –$5.00	$4.50 – 5.00	$4.50 –$5.00
Still run	$3.00	$3.00	$3.00
Breeze	$2.00	$2.00	$2.00

**Represents Both Sales and Quotations

California Refinery Market

Gasoline Prices Are Marked Up

LOS ANGELES, Sept. 15

THE California gasoline market for both export and tank car movements is showing considerable buoyancy with prices being marked up 0.25 to 0.50 cent.

Practically all of the major refiners except Richfield Oil Co. were refusing this week to quote on U. S. Motor and sales departments say they do not care to consider bids under 9 cents. It is still probable that one or two cargoes of U. S. Motor could be bought at 8.75 cents but not for immediate shipment.

Several of the more important refiners are making 400 and 390 end point gasoline and are asking 0.50 to 0.75 cent above U. S. Motor quotations for it. The refiners call attention to the lower tanker rates in effect to the East Coast and think they should be permitted to take advantage of this decline in rate.

Rumors are current in California, that an increase in the service station price of gasoline may be expected shortly and this rumor has served to encourage the small refiners in their determination to get more money. Spot tank cars have been moving around 9 cents and sometimes less but several refiners this week refused to consider less than 9.50 cents and some were asking 10 cents. These quotations were for out of state movement.

The gasoline within the state is moving around 10.50 cents up, tax to be added. Probably more than 90 per cent of the gasoline retailed in southern California this week was selling at the posted service station price of 20.50 cents. Only Wilshire Oil Co. dealers are exhibiting price signs at less than the posted price—their price being 18.50 cents. In a few instances, Independent service stations are offering premiums but the owners of these stations are gradually discontinuing this practice.

Natural gasoline is fairly active with spot goods moving in tank cars at 7 to 7.50 cents. Little natural gasoline is obtainable in California for spot sales as a large part of the total production is contracted for at figures that are about equal to the spot price.

The fuel oil market continues dull and there has been no spot movement in export trade for some time. Refiners still quote export fuel at 70 cents up but it was rumored this week that two or three cargoes might be bought at 65 cents where storage was filling up. In the tank car trade, fuel is bringing around 65 cents and the Independent refiners seem to be fairly successful in holding their stocks within storage limits.

Kerosene is scarce and some of the refiners are refusing to consider less than 6.50 to 7 cents for what little of this product they have to sell. Gas oil holds around $1.10 to $1.20 with the uncracked product scarce. Diesel oil is still available around 90 cents to $1.

SAN FRANCISCO, Sept. 14.—Walter W. Bradley, who has been serving for several years as assistant state mineralogist of California has been promoted to the position of state mineralogist to fill the vacancy caused by the resignation of Lloyd L. Root.

Pennsylvania Refinery Market

Steam Refined Up 1/2c

CLEVELAND, Sept. 15.—Steam refined stocks advanced .50 cent in western Pennsylvania market Saturday following increase in crude oil prices. Other prices were unchanged.

With the exception of wax and steam refined stocks, quotations on all commodities were steady throughout the week. Wax was quoted generally at 5.50 cents with some refiners asking 5.75 cents. New York buyers were bidding close to the market figure.

The 600 steam refined stock ended the week at 13.50 to 14 cents and the 650 at 15 to 16.50 cents. Low quotations were .50 cent below this until Saturday.

Majority of refiners continued to quote U. S. Motor gasoline at 12 and 12.25 cents with some at 12.50 cents. The 45 w. kerosene market advanced from 7.75 to 8.25 cents to 8 to 8.25 cents.

Stocks of gasoline, kerosene and wax continued at a low level. Majority of refiners reported being behind on shipments or else shipping each day's production immediately with tanks on bottom each night.

Fuel oil demand perked up some this week with a few refiners. This commodity, along with viscous neutrals, has been the quietest on the list through the summer. More refiners are reporting fuel oil demand a trifle heavier. One refiner took an order for five cars of 36-40 fuel at 4.75 cents.

A.O.M.A. Starts Magazine For Oil Salesmen

CHICAGO, Sept. 16.—American Oil Men's association, headed by James A. Gilmore of Chicago, has recently launched a house organ service for Independent jobbers. Members and non-members alike are permitted to enjoy the benefits of it because it has no special application to association members and all have to pay the same proportionately shared cost.

The "Service Station Salesman" is the name of the publication. Every subscribing company gets as many as the personnel of his own sales organization requires. Each one has its own name on the copies it uses, but the books are all alike otherwise. They are to be used in improving morale in the sales force, whether the salesman is a traveling salesman, a truck driver or a station attendant.

At the last count 65 Independent jobbers had subscribed for approximately 2500 issues per month.

Wax Market

Dealers Buy Less

NEW YORK, Sept. 15.—Wax markets suffered a slight setback this week when purchases by dealers—brokers and resale agents—were reported to have reached the saturation point. The setback, temporary in the opinion of most of the trade, was not of a drastic nature and prices receded but little.

Dealers, it appears, have stocked rather heavily on wax, particularly scale, in anticipation of heavy fall demand from Europe and also in view of the reported scarcity of goods in this country. Failure of foreign demand to increase materially forced a number of distress offerings on the market at prices slightly under those at which sales were recorded last week.

A number of refiners, however, reported this week that they were out of the market for the balance of September. It is generally believed this will give brokers an opportunity to work off some of their surpluses and in this way the steady forward movement which has characterized the wax market for the past few months will not be impeded greatly. There was still a good deal of talk about 6-cent scale before the end of the year, among brokers as well as refiners.

Several sources continued to report an active inquiry from abroad but little actual buying developed as a result of it. United Kingdom buyers are known to have made rather large purchases of Polish wax recently, but these, it was said, are far from sufficient to meet the fall requirements of this market.

White crude scale sold at 5.375 cents a pound for fairly prompt shipment in the New York market this week as against 5.50 cents a week ago. Most refiners continued to quote 5.50 to 5.625 cents but admitted their prices were largely nominal in view of the fact they had nothing to offer. Last week's high of 5.50 cents for white scale in the New Orleans market likewise was shaded this week, one or two small sales at 5.25 and 5.375 cents having been reported.

Fully refineds, though falling off in demand, remained generally unchanged in price with 125-127 A.m.p. held at 5.875 cents at New Orleans and 5.875 to 6 cents at New York.

Marquette Petroleum Moves

CHICAGO, Sept. 17.—Marquette Petroleum Products, lubricating engineers have moved into its new offices at 2301 S. La Salle st.

—THESE TIRE POP-VALVES FIT ALL VALVE STEMS—

Your Customers Buy on Sight

Here is the most efficient up-to-date method for inflating tires. Absolutely accurate and reliable. Every motorist wants a set. Supplied in attractive display boxes.

Most Attractive Article Ever Marketed

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NATIONAL PETROLEUM NEWS
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Cleveland, Ohio

New York Domestic Market

Jobbers Hold Off Purchases

Staff Special
NEW YORK, Sept. 15

DESPITE the failure of jobbing demand for gasoline to show any appreciable improvement, prices in eastern tank car markets held remarkably steady the past week. There were rumors of prices being shaded in various districts intermittently throughout the week, but careful surveys of the markets disclosed the fact they were largely rumors.

The trade generally agreed upon one question this week, namely that jobbing demand for gasoline was disappointing, particularly in view of the excellent motoring weather that has prevailed along the seaboard. Jobbers have been looking for an easier market and have been content to draw virtually the last drop from storage before making new purchases.

The attitude of jobbers currently toward the market has been evidence of the fact to several sellers that many would like to buy but are a bit afraid of a falling market. Numbers of them have attempted to buy over the balance of September on the basis of 11.75 cents at New York harbor with protection against a falling market. Sellers have been unwilling to commit themselves on this basis.

"When buyers are convinced," one important market observer said late this week, "that there is not going to be a 'crash' in the gasoline market this year, as in former years, we'll see a resumption of active jobber buying, but of course we can't expect it to be on as large a scale at this time of year." Although this observer admitted he had no basis for making this assertion other than the evidence of greater stability which the market has exhibited all year, compared with former years, other important market authorities were of much the same opinion. A general questioning of the trade, buyers as well as sellers, on this point showed the odds greatly against the probability of such a turn.

Sales of U. S. Motor gasoline were made largely at 11.75 cents at New York harbor this week. Reports received by the New York trade from jobbers to the effect they had been offered goods at 11.625 cents and as low as 11.50 cents were numerous, but few actual sales could be found at these lower figures.

One resale agent admitted he had sold some stuff at 11.625 cents Friday, and that he still had a few cars which he was willing to dispose of at this price, but he said the total volume of goods involved in his offers was small and could not be taken as representative of the general market.

Another large resale agent was accused at various times of cutting under 11.75 cents but this he emphatically denied to a representative of NATIONAL PETROLEUM NEWS. On Friday he showed this representative an order for a barge loading of U. S. Motor gasoline consummated that day at 11.75 cents, and asserted that thus far in September he had not sold a drop of gasoline below this price.

In other districts, particularly Baltimore and Philadelphia, similar reports were heard but in running them down they were found to be mostly talk. At Baltimore, most sellers continued to quote 11.75 cents for both California and regular U. S. Motor gasoline. The same prices prevailed at Philadelphia.

One large seller of California gasoline in the New York harbor market stated he had taken on sufficient orders for this grade at 11.75 cents to be representative of the market, but he was still holding up 12 cents.

New England markets were generally unchanged with most sellers quoting U. S. Motor at 12.25 cents, f.o.b. refinery, with a minimum delivered price of 13.50 cents. One large refiner was reported to be quoting 13 cents delivered in the Providence district but this report could not be verified.

Kerosene demand continued to improve and prices remained firm. Water white in tank cars was quoted at a minimum of 8.50 cents at New York, Philadelphia, and Baltimore. Several refiners reported they were out of the market on kerosene, but those active in the market asserted orders were much more numerous than a month ago.

Gulf Export Market

Inquiries Active but No Orders

Staff Special
NEW YORK, Sept. 15

ALTHOUGH foreign inquiring was active in New York for light oils out of the Gulf, the past week slipped by without the consummation of a single sale for shipment out of this district. California gasoline offered at prices considerably under Gulf market levels continued to attract the interest of European buyers and the few orders placed this week went to the west coast.

California competition as yet has had little effect on prices at the Gulf. Buyers in the market this week, on entering their inquiries indicated in most instances they would take shipment from either the Gulf or California. Few suppliers offering Mid-Continent goods quoted for the business. The prices of those that did, although lower than prices at which the last Gulf business was placed, were so high as to prove unattractive to buyers. They indicated clearly, however, that Gulf suppliers were not upset by the competition from the west coast and also that they were not in any way pressed for business.

The largest of this week's inquiries was one from the leading Independent buyer in the French market. His requirements consisted of approximately 75,000 barrels of 64-66, 375 end point gasoline for late October delivery. Two Gulf suppliers quoted on the inquiry, offering the one grade firm at 11.75 cents. A leading Philadelphia company closed the business Thursday supplying California goods at 10.1875 cents, f.o.b. California, which figures approximately 10.9375 cents at the Gulf under prevailing tanker rates.

Two other large inquiries, one from a French buyer for approximately 50,000 barrels of 64-66, 375 end point gasoline and one from a Scandinavian buyer for 50,000 to 65,000 barrels of the same grade, were pending as the week closed. All goods involved is for late October or early November loading.

There has been some question this week as to the price for U. S. Motor gasoline at the Gulf. The absence of inquiries for or purchases of this grade made it hard for suppliers to indicate just what the market was. Most of them continued to quote around 10 cents, although it was said in several quarters that this figure might possibly be shaded.

Demand for kerosene failed to show any appreciable improvement. At the same time suppliers were inclined to indicate higher prices. Stocks of kerosene, particularly water white, also are said to be very low at the Gulf. Most suppliers quoted 6.75 cents for prime white and 7.75 cents for water white this week.

The gas oil market was quiet with prices largely unchanged. Some shading of 3.875 cents for low gravity goods was reported but actual sales

(*Continued on Page* 116)

Complete Seaboard Market

(Export markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the years 1924-1925-1926-1927)

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of quotations.)

	Sept. 17	Sept. 10	Sept. 4
U.S. Motor gasoline, New York harbor	11.75	11.75	11.75
U.S. Motor gasoline, Philadelphia	11.75 –12.00	11.75 –12.00	11.50 –12.00
U.S. Motor gasoline, Portland	†12.25 –12.75	†12.25–12.75	†12.25 –12.75
U.S. Motor gasoline, Boston district	*12.25	*12.25	*12.25
U.S. Motor gasoline, Providence district	*12.25	*12.25	*12.25
U.S. Motor gasoline, Baltimore	11.75	11.75	11.75
U.S. Motor gasoline, Norfolk	11.75	11.75	11.75
U.S. Motor gasoline, Charleston	11.50	11.50	11.50
U.S. Motor gasoline, Savannah	11.25	11.25	11.25
U.S. Motor gasoline, Jacksonville	11.00 –11.25	11.25	11.25
California U.S. Motor gasoline, New York Harbor	11.75 –12.00	12.00	12.00
California U.S. Motor gasoline, Baltimore	11.75	11.75	11.75
California U.S. Motor gasoline, Philadelphia	11.75	11.75	11.50 –11.75
Water white kerosene, New York Harbor	8.50	8.50	8.50
Water white kerosene, Philadelphia	8.50	8.50	8.50
Water white kerosene, Baltimore	8.50	8.50	8.50
28-34 gas oil, New York harbor	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
28-34 gas oil, Boston district	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
36-40 furnace oil, New York harbor	6.00	6.00	6.00
36-40 furnace oil, Boston district	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
Grade C bunker oil, New York harbor	$1.05	$1.05	$1.05
Grade C bunker oil, Boston district	$1.05	$1.05	$1.05
Diesel oil, New York harbor	$2.00	$2.00	$2.00

Note: Above prices do not include inspection tax levied in some states.
*Minimum of 13.50c delivered.
†13.50 to 14c delivered

MEDICINAL OILS

Russian 885-890 s.g. 325-330 vis	$0.80 – 0.90	$0.80 – 0.90	$0.80 – 0.90
Russian 870-875 s.g., 150-155 vis	$0.67 – 0.77	$0.67 – 0.77	$0.67 – 0.77
Russian 860-865 s.g., 80-85 vis	$0.65 – 0.75	$0.65 – 0.75	$0.65 – 0.75

New York Export Market

(Gasoline and kerosene in cases in bulk. Lubricating oils are per gal. in bbls. Cylinder oils are Penna. products.)

	Sept. 17	Sept. 10	Sept. 4
U. S. Motor gasoline	26.90	26.90	26.90
43-45 150 w.w. kerosene	18.65	18.65	18.65
42-44 110 s.w. kerosene	17.40	17.40	17.40
CYLINDER OILS			
Bright stock, dark	42.00 –43.00	42.00 –43.00	42.00 –43.00
600 D filtered	31.00 –32.00	31.00 –32.00	31.00 –32 00
600 Warren E filtered	26.00 –27.00	26.00 –27.00	26.00 –27 00
600 s.r. unfiltered	21.00	21.00	21 00
650 s.r. unfiltered	22.50 –23.00	22.50 –23.00	22.50 –23 00
600 flash, s.r.	26.00	26.00	26.00
630 flash, s.r.	34.00 –36.00	34.00 –36.00	34.00 –36.00
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	19.50	19.50	19.50
250 vis. No. 6 color	18.50	18.50	18.50
200 vis. No. 6 color	18.00	18.00	18.00
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¾ color	23.50	23.50	23.50
180 vis. No. 3½ color	19.50	19.50	19.50
100 vis. No. 2¼ color	15.50	15.50	15.50
MOTOR OILS (Vis. 100°)			
600 vis. No. 7 color	34.50	34.50	34.50
500 vis. No. 6½ color	32.50	32.50	32.50
400 vis. No. 7¼ color	30.50	30.50	30.50
300 vis. No. 6 color	29.50	29.50	29.50
200 vis. No. 3¼ color	20.00	20.00	20.00
MEDICINAL OILS			
875-885 s.g.	$0.80	$0.80	$0.80
865-870 s.g.	$0.70	$0.70	$0.70

WAXES (In cents per pound, f.a.s. carload lots)
WHITE CRUDE SCALE (In barrels)

	Sept. 17	Sept. 10	Sept. 4
122-124 A.m.p.	5.375– 5.50	5.50	5.25 – 5.375
124-126 A.m.p.	5.375– 5.50	5.50	5.25 – 5.375
FULLY REFINED (In burlap bags)			
123-125 A.m.p. Phila.	5.875	5.875	5.625– 5.75
125-127 A.m.p.	5.875– 6.00	5.875– 6.00	5.75 – 5.875
128-130 A.m.p.	6.25	6.25	6.00 – 6.25
130-132 A.m.p.	6.50 – 6.75	6.50 – 6.75	6.25 – 6.50
133-135 A.m.p.	7.25 – 7.50	7.25 – 7.50	7.25
135-137 A.m.p.	7.75	7.75	7.50
YELLOW CRUDE SCALE			
124-126 A.m.p.	5.25	5.25 – 5.375	5.00 – 5 125

Gulf Export Market

(Prices are f. o. b. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. and over unless otherwise noted, representing sellers' opinions, except those prices specified to the contrary)

GASOLINE	Sept. 17	Sept. 10	Sept. 4
U. S. Motor	10.00	10.00	10.00 –10.25
60-62, 400 e.p.	10.75	10.75	10.75 –11.00
61-63, 390 e.p.	11.25	11.25	11.50
64-66, 375 e.p.	11.75 –12.00	12.00	12.00 –12.25
U. S. Motor, cases (cargoes)	$1.90	$1.90	$1.95
64-66, cases (cargoes)	$2.10	$2.10	$2.10
KEROSENE			
44 water white	7.75	7.75	7.75
41-43 prime white	6.75	6.75	6.75
Water white, cases (cargoes)	$1.65	$1.65	$1.65
Prime white, cases (cargoes)	$1.55	$1.55	$1.55
DOMESTIC GAS & BUNKER OILS			
*26-30 translucent gas oil	3.875– 4.00	3.875– 4.00	3.875– 4.00
*30-32 translucent gas oil	4.00	4.00	4.00
Grade C bunker oil	$0.875–$0.95	$0.80 –$0.90	$0.80 –$0.90
Grade C bunker oil, cargoes	$0.65 –$0.70	$0.65 –$0.70	$0.65 –$0.70

***Less than ½ of 1% sulfur.**

MEXICAN CRUDE AND BUNKER OILS (F. O. B. Steamer, Tampico)

Heavy Panuco crude taxes to be paid	$0.95	$1.00 –$1.02	$1.00 –$1.02
Grade C bunker oil, for bunkering purposes, taxes paid	$1.05	$1.10	$1.10

SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F.: cold test 0) (Tanker, f.o.b. Houston)

100 vis. No. 2 unfiltered pale	5.75	5.75	5.75
200 vis. No. 3 unfiltered pale	8.50 – 9.00	8.50 – 9.00	8.50 – 9.00
300 vis. No. 3 unfiltered pale	9.50 – 9.875	9.50 – 9.875	9.50 – 9.875
500 vis. No. 3½ unfiltered pale	10.75 –11.50	10.75 –11.50	10.75 –11.50
750 vis. No. 4 unfiltered pale	12.50 –13.00	12.50 –13.00	12.50 –13.00
1200 vis. No. 5 unfiltered pale	15.50 –16.00	15.50 –16.00	15.50 –16.00
200 vis. No. 5-6 red oil	7.00 – 8.00	7.00 – 8.00	7.00 – 8.00
300 vis. No. 5-6 red oil	8.00 – 9.00	8.00 – 9.00	8.00 – 9.00
500 vis. No. 5-6 red oil	9.75 –10.50	9.75 –10.50	9.75 –10.50
750 vis. No. 5-6 red oil	11.25 –11.50	11.25 –11.50	11.25 –11.50
1200 vis. No. 5-6 red oil	14.50 –16.50	14.50 –16.50	14.50 –16.50

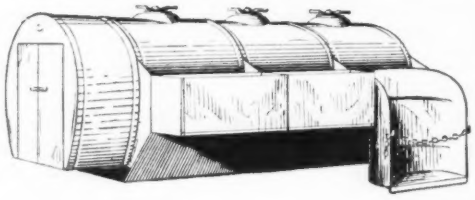
Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	Sept. 17	Sept. 10	Sept. 4
Gasoline, U. S. Motor, 53-55 Gravity	8.75 – 9.25	8.50 – 9.00	8.50 – 9.00
Gasoline, U. S. Motor, blends and special cuts	9.25 –10.50	9.00 – 9.50	9.00 – 9.50
Gas Oil, 30-34, per barrel	$1.10 –$1.20	$1.10 –$1.20	$1.10 –$1.20
Diesel Oil, 27 plus, per barrel	$0.95 –$1.10	$0.95 –$1.10	$0.95 –$1.10
Bunker oil, 14-18, per barrel	$0.80 –$1.00	$0.80 –$1.00	$0.80 –$1.00
Fuel oil, 14-18 per barrel	$0.70 –$1.00	$0.70 –$1.00	$0.70 –$1.00
Kerosene, 38-40 w.w., 125-150 flash, per gal.	5.50 – 6.00	5.50 – 6.00	5.50 – 6.00
Cased Goods			
Gasoline, U. S. Motor	$1.75 –$1.85	$1.75 –$1.85	$1.75 –$1.85
Kerosene, 38-40 w.w., 125-150 flash	$1.50 –$1.60	$1.50 –$1.60	$1.50 –$1.60

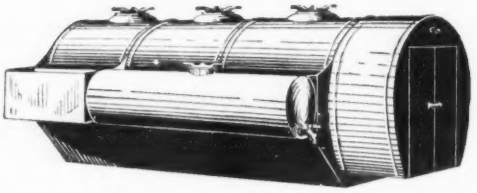
Convertible Truck Tank $150

Capacity Changes to Fit Current Demand and Road Conditions



In an hour a section of the side can racks is replaced with barrel carrier. 50 extra gallons may be carried on each side of the tank. Ride low down without making load top heavy.

Take off two sections of side racks on each side, replace with either 30 or 50 gallon side tanks and extra demand for gasoline, kerosene or lube oil is easily handled. Conversion is made in an hour's time.



Capacity of tank is 375 gallons. Side racks will handle 120 extra gallons in cans. Combination of side racks and side tanks gives up to 140 extra gallons. Combination of side racks and barrel carriers gives 180 extra gallons capacity.

Interchangeable on Chevrolet Trucks or New Ford Truck or others with back of cab lengths around 80 inches. 3-point supported. The tank, the mounting, the pipe lines and the bucket box are welded into an integral unit of steel. $150.00 includes side racks f. o. b. Kansas City. Faucets, side tanks and barrel racks are extra.

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COLUMBIAN STEEL TANK COMPANY
KANSAS CITY, MISSOURI

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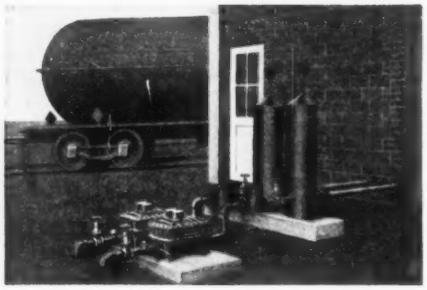

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Week's Price Changes Tank Wagon Markets

Gasoline Changes

Standard of Indiana—Irregular advance in t.w. and s.s. prices of gasoline to re-establish a 2 cent spread were made at St. Louis and East St. Louis, **Sept. 10.** T.w. at St. Louis was advanced 3/10 cent to 16.9 cents, including 2.5 cent state and city tax. S.s. price was unchanged at 18.9 cents.

T.w. price at East St. Louis, Ill. was advanced 3/10 cent to 14.4 cents and s.s. price from 16.35 cents to 16.40 cents.

T.w. and s.s. prices reduced 2/10 cent at Huron, to 20.3 cents and 22.3 cents respectively, including 4 cent state tax, **Aug. 22.**

T.w. and s.s. prices reduced ½ cent, Pierre, to 20 cents and 22 cents respectively, including 4 cent state tax, **Aug. 22.**

Standard of Louisiana—T.w. and s.s. prices gasoline advanced 1 cent, Memphis, to 18 cents and 20 cents respectively, including 3 cent state tax, **Sept. 8.**

Kerosene Changes

Standard of Kentucky—Kerosene advanced 1 cent, Louisville, to 15 cents t.w., **Sept. 10.**

Standard of Indiana—Kerosene reduced 2/10 cent, Huron, to 13.7 cents t.w., and reduced ½ cent, Pierre, to 13.4 cents t.w., **Aug. 22.**

Magnolia Petroleum—Kerosene reduced 2 cents, Tulsa, to 9 cents t.w., **Sept. 6.**

Gulf Inquiries Active; Orders Few

(*Continued from Page* 112)

below this price could not be confirmed. For 32 plus with low sulfur content, suppliers were asking a minimum of 4 cents.

Fuel oil was a shade steadier at the Gulf. Cargo prices for grade C were generally unchanged but most suppliers were asking 5 to 7.5 cents higher for bunkers. At least one cargo of Grade C for resale sold at slightly under $0.65 a barrel the forepart of this week, but most suppliers were holding at this figure as minimum.

Bunkers sold at $0.875 a barrel in the New Orleans market Thursday against a price of $0.80 reported available a week ago. In the Port Arthur district bunkers were available at a minimum of $0.95 a barrel.

Interest in the Mexican heavy oil market was a shade more active. A cargo of heavy Panuco was sold to a New England refiner on Thursday at $0.95 a barrel, f.o.b. Tampico. A 35,000 barrel cargo of this oil was offered firm Saturday at the same price for September-October delivery. Bunkers were quoted at around $1.05 a barrel at Tampico.

Tank Wagon, Service Station Markets for Gasoline and Kerosene

(OIL PRICE HANDBOOK has t.w. and s.s. markets for 1927, 1926, 1925, 1924 arranged for quick reference)

These Prices in Effect Sept. 17, 1928, as Posted by Principal Marketing Companies

S.O. NEW JERSEY TERRITORY

	Gasoline				Oil
			Total		
	T.W.	Tax	T.W.	S.S.	T.W.
Atlantic City, N. J.	17	2	19	20	14
Newark, N. J.	17	2	19	20	14
Annapolis, Md.	17	4	21	23	14
Baltimore, Md.	17	4	21	23	11
Cumberland, Md.	17	4	21	23	14
Washington, D. C.	17	2	19	21	14
Danville, Va.	17	5	22	*	14
Norfolk, Va.	14	5	19	20	14
Richmond, Va.	17	5	22	24	14
Roanaoke, Va.	17	5	22	24	14
Petersburg, Va.	17	5	22	24	14
Charleston, W. Va.	17	4	21	23	14
Keyser, W. Va.	17	4	21	23	14
Parkersburg, W. Va.	17	4	21	23	14
Wheeling, W. Va.	17	4	21	23	14
Charlotte, N. C.	17	4	21	23	14
Hickory, N. C.	17	4	21	23	14
Mt. Airy, N. C.	17	4	21	23	14
Salisbury, N. C.	17	4	21	23	14
Charleston, S. C.	17	5	22	24	14
Columbia, S. C.	17	5	22	24	14

*Dealers set own prices. S. O. New Jersey does not operate station.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

New York City	18	0	18	*20	15
Albany, N. Y.	18	0	18	21	15
Buffalo, N. Y.	18	0	18	20	15
Rochester, N. Y.	18	0	18	20	13
Syracuse, N. Y.	18	0	18	20	15
Boston, Mass.	18	0	18	20	15
Augusta, Me.	18	4	22	24	15
Manchester, N. H.	18	4	22	24	15
Burlington, Vt.	18	3	21	23	15

*The Standard of New York does not operate stations in New York City. This figure is the retail price of a principal station operator in New York, selling Socony gasoline.

ATLANTIC REFINING

Pittsburgh, Pa.	18	*	18	*23	15
Philadelphia, Pa.	18	*	18	*23	15
Allentown, Pa.	18	*	18	*23	15
Erie, Pa.	18	*	18	*23	15
Scranton, Pa.	18	*	18	*23	15
Altoona, Pa.	18	*	18	*23	15
Dover, Del.	18	3	21	23	15
Wilmington, Del.	18	3	21	23	15
Providence, R. I.	18	2	20	22	15
Boston, Mass.	18	0	18	20	15
Springfield, Mass.	18	0	18	20	15
Worcester, Mass.	18	0	18	20	15
Hartford, Conn.	18	2	20	22	14
New Haven, Conn.	18	2	20	22	15

*3-cent state tax is collected by retail dealer and paid by him directly to state.

S. O. KENTUCKY

Ashland, Ky.	17	5	22	24	15.5
Catlettsburg, Ky.	17	5	22	24	15.5
Lexington, Ky.	16	5	21	23	15.5
Louisville, Ky.	16	5	21	23	15
Covington, Ky.	17	5	22	22	15.5
Clarksdale, Miss.	17	4	21	23	13
Gulfport, Miss††	18.5	4	22.5	24.5	14
Jackson, Miss.	17	4	21	23	14.5
Natchez, Miss.	16.5	4	20.5	22.5	14
Vicksburg, Miss.	16.5	4	20.5	22.5	14
Birmingham, Ala.	14	4	18	20	16
Mobile, Ala‡	18	4	22	24	15
Montgomery, Ala.*	19	4	23	25	16.5
Atlanta, Ga.	18	4	22	24	†16.5
Augusta, Ga.	18	4	22	24	†15.5
Macon, Ga.	18	4	22	24	†16.5
Savannah, Ga.	17	4	21	21	†15 5
Jacksonville, Fla.	18	5	23	25	14.5
Miami, Fla.	19	5	24	26	15.5
Tampa, Fla.	18	5	23	25	14.5
Pensacola, Fla.**	19	5	24	26	14.5

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included. ‡Mobile gasoline prices include 1c city tax.

†Georgia kerosene prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola, which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

S. O. INDIANA

	Gasoline				Oil
			Total		
	T.W.	Tax	T.W.	S.S.	T.W.
Chicago, Ill.	15	0	15	17	12
Decatur, Ill.	15.2	0	15.2	17.2	12.1
E. St. Louis, Ill.	14.4	0	14.4	16.4	11.2
Joliet, Ill.	15.4	0	15.4	17.4	12.3
Peoria, Ill.	15.2	0	15.2	17.2	12.1
Quincy, Ill.	15.2	0	15.2	17.2	11.9
Indianapolis, Ind.	15.2	3	18.2	20.2	13.2
Evansville, Ind.	15	3	18	20	13
South Bend, Ind.	15.4	3	18.4	20.4	13.4
Detroit, Mich.	15.8	3	18.8	20.8	13.7
Grand Rapids, Mich.	15.7	3	18.7	20.7	13.6
Saginaw, Mich.	15.9	3	18.9	20.9	13.8
Green Bay, Wis.	15.6	2	17.6	19.6	12.4
Madison, Wis.	15.3	2	17.3	19.3	12.1
Milwaukee, Wis.	15.1	2	17.1	19.1	11.9
La Crosse, Wis.	16.2	2	18.2	20.2	13
Minneapolis, Minn.	16.2	2	18.2	20.2	12.9
Duluth, Minn.	16.5	2	18.5	20.5	12.9
Mankato, Minn.	16.1	2	18.1	20.1	12.7
Des Moines, Ia.	15.5	3	18.5	20.5	12.3
Davenport, Ia.	15.5	3	18.5	20.5	12.3
Sioux City, Ia.	15.1	3	18.1	20.1	11.9
Mason City, Ia.	15.5	3	18.5	20.5	12.3
St. Louis, Mo.	*14.9	2	16.9	18.9	11.3
Kansas City, Mo.	†15.9	2	17.9	19.9	10.6
St. Joseph, Mo.	†15.5	2	17.5	19.5	11.2
Fargo, N. D.	17.9	2	19.9	21.9	14.9
Grand Forks, N. D.	18.2	2	20.2	22.2	15.2
Minot, N. D.	17.9	2	19.9	21.9	14.9
Pierre, S. D.	16	4	20	22	13.4
Huron, S. D.	16.3	4	20.3	22.3	13.7
Wichita, Kans.	13.8	2	15.8	17.8	10.8
Bartlesville, Okla.	13.5	3	16.5	18.5	10.5

S. O. Indiana's quantity discount schedule on tank wagon deliveries of gasoline is ½c for 750 gals. or more a month; 1c for 2,000 gals. or more a month; 1½c for 6,000 gals. or more a month; 2c for 10,000 gals. or more a month, and 3c for 15,000 gals. or more a month.

Service station discount is 2c per gal. to consumers of 200 gals. or more a month. All discounts adjusted annually.

*Includes city tax of ½c.

†Includes city tax of 1c.

CONTINENTAL OIL

Denver, Colo.	16	3	19	22	14.5
Pueblo, Colo.	16	3	19	22	14.5
Grand Junc., Colo.	19.5	3	22.5	25.5	18
Casper, Wyo.	16	3	19	22	13
Cheyenne, Wyo.	17	3	20	23	14.5
Butte, Mont.	20.5	3	23.5	26.5	19
Helena, Mont.	20.5	3	23.5	26.5	19
Salt Lake City, Utah.	18.5	3½	22	25	17
Boise, Ida.	20.5	4	24.5	27.5	19
Twin Falls, Ida.	20.5	4	24.5	27.5	19
Albuquerque, N. M.	17	5	22	25	17

S. O. CALIFORNIA

Phoenix, Ariz.	12	4	16	20	21.5
Los Angeles, Cal.	13.5	3	16.5	20.5	15.5
Fresno, Cal.	14	3	17	21	16.5
San Francisco, Cal.	14	3	17	21	15.5
Reno, Nev.	18	4	22	26	19
Portland, Ore.	14.5	3	17.5	21.5	16.5
Seattle, Wash.	14.5	2	16.5	20.5	16.5
Spokane, Wash.	18.5	2	20.5	24.5	20.5
Tacoma, Wash.	14.5	2	16.5	20.5	16.5

S. O. LOUISIANA

Little Rock, Ark.	16	5	21	23	14
Alexandria, La.	15	2	17	19	†16
Baton Rouge, La.	14	2	16	18	†14.5
Lake Charles, La.	15.5	2	17.5	19.5	†16
New Orleans, La.	*15.5	2	*17.5	*19.5	†16
Shreveport, La.	15.5	2	17.5	19.5	†15
Lafayette, La.	15	2	17	19	†15.5
Bristol, Tenn.	18	3	21	23	15
Chattanooga, Tenn.	17.5	3	20.5	22.5	16
Knoxville, Tenn.	18	3	21	23	16
Nashville, Tenn.	17	3	20	22	16
Memphis, Tenn.	15	3	18	20	15

*New Orleans gasoline prices include 1c parish tax in addition to 2c state tax, and kerosene prices include 1c state tax and 1c parish tax.

†Kerosene price in Louisiana includes 1c state tax.

S. O. OHIO

	Gasoline				Oil
			Total		
	T.W.	Tax	T.W.	S.S.	T.W.
All Ohio points	16	3	19	20	14

S. O. NEBRASKA

Omaha, Neb.	15.25	2	17.25	19.25	12.25
McCook	16.75	2	18.75	20.75	13.75
Norfolk	15.75	2	17.75	19.75	12.75
North Platte	16.75	2	18.75	20.50	13.50
Scottsbluff	16.75	2	18.75	20.75	13.25

MAGNOLIA PETROLEUM

Muskogee, Okla.	15	3	18	20	11
Oklahoma City	15	3	18	20	11
Tulsa, Okla.	14	3	17	19	9
Fort Smith, Ark.*	16	*2	18	20	13
Little Rock, Ark.	16	5	21	23	13
Texarkana, Ark.*	14.5	*2	16.5	20.5	13
Dallas, Tex.	14	2	16	20	12
Fort Worth, Tex.	14	2	16	19	12
Houston, Tex.	14	2	16	20	15
San Antonio, Tex.	12	2	14	17	11
El Paso, Tex.	15	2	17	20	16

*Within City of Texarkana and Fort Smith, the state tax on gasoline is 2c per gal. conforming with the Texas state tax. In these two districts outside of the city the 5c Arkansas tax applies.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	14.7	16.2	18
Detroit	16.4	17.9	19.7
Kansas City	†14.9	†16.4	†18.2
Milwaukee	*15.4	*18.9	*20.7
Minneapolis	*18.7	*20.2	*22
St. Louis	14.6	16.1	17.9
New York		20	....

*Includes 2c state tax. †Includes 1c city tax.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

ONTARIO

	Gasoline				Oil
			Total		
	T.W.	Tax	T.W.	S.S.	T.W.
Toronto	20.5	3	23.5	27	22
Ottawa	20.5	3	23.5	27	22
Cochrane	25.5	3	28.5	..	27
Ft. William	23.5	3	26.5	30	23.5

MANITOBA

Winnipeg	22.5	3	25.5	29	22.5

SASKATCHEWAN

Regina	27	3	30	34	27

ALBERTA

Edmonton	27.5	3	30.5	34	27.5
Calgary	22.5	3	25.5	29	22.5

BRITISH COLUMBIA

Vancouver	21	3	24	28	22

QUEBEC

Montreal	21.5	5	26.5	30	22
Quebec City	22.5	5	27.5	31	23
Three Rivers	22.5	5	27.5	31	23

NEW BRUNSWICK

St. John	23.5	3	26.5	30	25
Moncton	23.5	3	26.5	30	25

NOVA SCOTIA

Halifax	23.5	5	28.5	32	25
Sydney	23.5	5	28.5	32	25

PRINCE EDWARD ISLAND

Charlottetown	23.5	5	28.5	32	25

Note: In districts surrounding these points 1c additional is added to city price.

Above prices include these inspection fees on both gasoline and kerosene, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosene; Arkansas, 1/20c on both; Colorado, 1/10c on both; Florida, 1/8c on both; Indiana, 2/25c on both; Kansas, 1/50c on both; Louisiana, 1/32c on gasoline, 1c on kerosene; Minnesota, 3/50c on both; Missouri, 1/50c on both; Nebraska 3/50 to 1/2c on both; North Carolina, 1/4c on both; North Dakota, 1/20c on both; Oklahoma, 4/25c on both; South Carolina, 1/8c on both; South Dakota, 1/10c on both: Tennessee, 2/5c on gasoline and 1/2c on kerosene; Wisconsin, 3/50c on both.

Kerosene inspection fees only: Iowa, 13/100c; Michigan, 1/5 to 4/5c per gal.

In Illinois, cities and villages have the power to appoint oil inspectors and fix inspection fees which is done in some instances. In some cases in the above states or other states there are local inspection fees.

Crude Oil Prices (in Effect Sept. 17)

(Crude prices for years 1924-1925-1926-1927 in OIL PRICE HANDBOOK published annually)

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Penna. Grade Oil in New York Transit Lines (Alleghany, N. Y. District)	$3 35
Bradford District Oil in National Transit Lines (Bradford District)	3.35
Penna. Grade Oil in National Transit Lines (Other Pennsylvania)	3.25
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)	3.25
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)	3.15
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)	3.00
Keister Grade in National Transit Lines (Butler Co.)	1.20
Cabell Grade in Eureka Pipe Lines (West Virginia)	1.45
Corning Grade in Buckeye Pipe Lines (Ohio)	1.80
Corning, O., heavy grade	1.70
Somerset Oil in Cumberland Pipe Lines (Kentucky)	1.75
Ragland Grade in Cumberland Pipe Lines (Kentucky)	.95

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines	$1.65

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Effective July 27, 1928

Wooster	$1 67	Princeton	$1.55
Lima	1 60	Illinois	1.55
Waterloo	1.20	Plymouth	1.28
Indiana	1.37	West Kentucky	1.63

CANADIAN CRUDE

Posted by Imperial Oil Refineries, Ltd.

Petrolia	$2 00
Oil Springs	2.07

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Prairie Oil & Gas Co.

(In Oklahoma, Kansas, North and East Central Texas)

Effective July 26, 1928

Below 25	$0 60	35-35.9	$1.31
25-25.9	0 67	36-36.9	1.36
26-26.9	0 74	37-37.9	1.41
27-27.9	0 81	38-38.9	1.46
28-28.9	0 88	39-39.9	1.51
29-29.9	0 95	40-40.9	1.56
30-30.9	1 02	41-41.9	1.61
31-31.9	1 09	42-42.9	1.66
32-32.9	1 16	43-43.9	1.71
33-33.9	1.21	44 and above	1.76
34-34.9	1.26		

Humble Oil & Refining Co. Prices

(Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

July 26, same schedule as Prairie.

Mirando, Tex.	$1.00

Magnolia Petroleum Co.

(In Oklahoma, Kansas and North and East Central Texas)

July 26, Magnolia posted in above fields and in Panola Co., same schedule as Prairie, except these grades:

Below 25	$0 60	27-29.9	$0 75
25-25.9	0 67	30-30.9	0 90
26-26.9	0 74	31-31.9	1 05
Glasscock, Crane, Upton, Winkler Counties			0 65
Chalkfield (Howard Co.)			0.80
Iatan district			0.93
Corsicana heavy			1.00

Carter Oil Co.

(Oklahoma and Kansas)

July 26, same schedule as Prairie except Carter does not post oil below 25.

PANHANDLE, TEXAS

Humble Oil & Refining Co.

Effective July 26, 1928

Hutchinson and Carson Counties:

Below 32	$0 69	38-38.9	$1.06
32-32.9	0 76	39-39.9	1 11
33-33.9	0 81	40-40.9	1 16
34-34.9	0 86	41-41.9	1 21
35-35.9	0 91	42-42.9	1 26
36-36.9	0 96	43-43.9	1 31
37-37.9	1.01	44 and above	1.36

Wheeler County:

Below 30	$0.65	37-37.9	$1.11
30-30.9	0 72	38-38.9	1.16
31-31.9	0 79	39-39.9	1.21
32-32.9	0 86	40-40.9	1.26
33-33.9	0.91	41-41.9	1.31
34-34.9	0.96	42-42.9	1.36
35-35.9	1.01	43-43.9	1.41
36-36.9	1.06	44 and above	1.46

Gray County:

Below 29	$0.68	37-37.9	1.21
29-29.9	0 75	38-38.9	1.26
30-30.9	0 82	39-39.9	1.31
31-31.9	0 89	40-40.9	1.36
32-32.9	0.96	41-41.9	1.41
33-33.9	1.01	42-42.9	1.46
34-34.9	1.06	43-43.9	1.51
35-35.9	1.11	44 and above	1.56
36-36.9	$1.16		

WEST TEXAS

Humble Oil & Refining Co.

Effective July 26, 1928

Winkler, Crane, Upton, Crockett, and Pecos Counties	$0.65

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana

Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton, De Soto and **Cotton Valley.

Effective July 26, 1928

Below 28	$0 81	36-36.9	$1.36
28-28.9	0 88	37-37.9	1.41
29-29.9	0 95	38-38.9	1.46
30-30.9	1 02	39-39.9	1.51
31-31.9	1 09	40-40.9	1.56
32-32.9	1 16	41-41.9	1 61
33-33.9	1 21	42-42.9	1 66
34-34.9	1 26	43-43.9	1 71
35-35.9	1.31	44 and above	1.76

**Cotton Valley, below 36, $0.75. Beginning with 36-36.9, same schedule as above.

Smackover, below 24	$0.75
do 24 and above	.90
Bellevue	1.25
*Urania, La.	85
†East El Dorado	0.75

*Posted by Louisiana Oil Refining Corp.

†Posted by Magnolia Petroleum Co.

Smackover prices posted on Feb. 7 by S. O. La. Gulf, Shreveport-El Dorado Pipe Line, Atlantic Oil Producing Co. and The Texas Co.; on Feb. 8 by Magnolia, on Feb. 6 by La. Oil Refg. Corp.

Aug. 8 The Texas Co., same schedule in Louisiana as Standard, plus these grades: 24-24.9, $0.60; 25-25.9, $0.67. 26-26.9, $0.74. 27-27.9, $0.81.

Aug. 7 Magnolia Petroleum met Standard schedule in Louisiana-Arkansas fields.

STEPHENS, ARKANSAS

Louisiana Oil Refining Corp., and Atlantic Oil Producing Co.

Effective Aug. 2, 1928

Below 28	$0 75	30-30.9	$0 87
28-28.9	0 79	31-31.9	0 91
29-29.9	0 84	32 and above	0.95

GULF COASTAL

Posted by Humble Oil & Refining Co.

Effective March 14 1927

Grades A	$1.20	29-29.9	$1.25
Grades B:		30-30.9	1.27
Below 25	1.15	31-31.9	1.29
25-25.9	1.17	32-32.9	1.31
26-26.9	1.19	33-33.9	1.33
27-27.9	1.21	34-34.9	1.35
28-28.9	1.23	35 and above	1.37

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling and Pierce Junction. All other fields are Grades A only.

Venezuela Crude Market

NEW YORK, Sept. 15.—Spot cargoes of Venezuela crude were freely offered at $0.78 a barrel in the New York market this week. At least two cargoes were reported sold at this figure. A firm offer of a cargo at $0.75 a barrel was reported to have been made toward the end of the week.

At $0.78 f.o.b. deepwater in the Lake Maracaibo region, cost laid down north of Hatteras figures around $0.96 a barrel under prevailing tanker rates.

CHICAGO, Sept. 15.—Paschall, Harris & Paschall, Inc., the new name for Irvin F. Paschall, Inc., advertising agents, have been named as advertising counsel by the Independent Oil Men of America, the joint advertising and merchandising organization of independent marketing companies.

Crude Price Changes

OIL CITY.—On Sept. 14 Joseph Seep Purchasing Agency advanced all grades of Pennsylvania crude 15 cents, except Keister grade which is unchanged. It also advanced Somerset crude on the same day 5 cents. New prices are:

Pennsylvania grade oil in New York and National Transit Pipe Line lines (Bradford-Alleghany district), $3.35; other Pennsylvania in National Transit and Southwest Pennsylvania Pipe Line lines, $3.25; Pennsylvania oil in Eureka lines, $3.15; Macksburg, O. district, $3.00; Somerset in Cumberland lines, $1.75.

Last previous changes on Pennsylvania crude was a 15 to 20-cent advance on July 9, and on Somerset was a 15 cent advance on July 30.

FINDLAY—On Sept. 17 Ohio Oil Co. advanced Western Kentucky crude 15 cents per barrel, making new price $1.63.

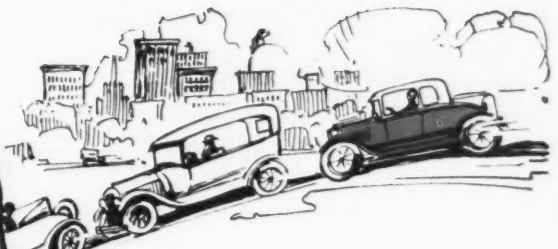
Gulf Coastal Lubes Cheaper

HOUSTON, Sept. 17.—Shading of list prices by some of the Gulf Coastal lube manufacturers has again widened the range of quotations in the Houston district. The market itself remains unchanged but enough goods has been moving under the prices published Sept. 10 to lower those prices. Greatest demand continues to be for 500 and 750 viscosity grades.

Enlarges Gasoline Plant

LOS ANGELES, Sept. 14.—The Texas Co. is arranging to add a new unit to its present natural gasoline plant at Santa Fe Springs. The new unit will have a daily capacity of about 12,000,000 cubic feet of gas and if the present drilling campaign develops a large amount of natural gas in the field, another unit will be added later. Texas Co. engineers are handling the construction work themselves.

SUPER-RATIO
Anti-Knock High Compression
MOTOR FUEL



The Best Gasoline for Fords

THERE are more Ford cars in your territory than any other kind. With SUPER-RATIO Motor Fuel you can offer Ford owners the best gasoline for Fords ever made. Derby advertising paves the way and Derby quality maintains the lead.

SUPER-RATIO IS the best gasoline for Fords, either Model T or the new Ford, because:

1. It will add from 10 to 15 per cent more power to Model T and from 25 to 35 per cent more power to the new Ford.
2. Every distillation is laboratory controlled and every gallon tested before it is shipped.
3. SUPER-RATIO has a Benzol equivalent in excess of 50 per cent.
4. It gives more power, quicker acceleration, faster pickup and starts easily and quickly.
5. SUPER-RATIO is a knockless, carbonless, pullsmore motor fuel.
6. It is a manufactured product, the latest and best result of the most modern distillation methods. It is not just an ordinary gasoline, "treated" or "doped."

Road tests have proven it the best gasoline for Fords.

DERBY HIGH GRADE PETROLEUM PRODUCTS

Stock Them and Be Quality-Sure

64-66 375 Hi-Test
60-62 400 Straight Cracked
58-60 Straight Run U. S. M.

41-43 W.W.D.T. Incubator Kerosene Fuel Oil.

WRITE Wichita, Kansas, L. D. 177
WIRE
PHONE Kansas City, Mo., L. D. 94

The Derby Oil & Refining Corporation

PRODUCERS, REFINERS, MARKETERS

WICHITA, KANSAS

Crude Oil Prices (in Effect Sept. 17)

(Crude prices for years 1924-1925-1926-1927 in OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co.

Effective March 14, 1927

Grades A.....$1.20	*Grades B.....$1.15
‡Grades B (light crude):	
35-35.9.....$1.37	38-38.9.....$1.43
36-36.9..... 1.39	39-39.9..... 1.45
37-37.9..... 1.41	40 and above... 1.47

*Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.

‡The Texas Co.'s gravity and price schedule on oil below 35° is same as Humble's postings on Grades B.

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co., and Midwest Refining Co.

(Salt Creek prices effective July 26, 1928)

‡Salt Creek 29-29.9	$0.95
" " 30-30.9	1.02
" " 31-31.9	1.09
" " 32-32.9	1.16
" " 33-33.9	1.21
" " 34-34.9	1.26
" " 35-35.9	1.31
" " 36-36.9	1.36
" " 37 and above	1.41
Elk Basin	1.48
Grass Creek light	1.48
Big Muddy	1.33
Lance Creek	1.48
Rock Creek	1.33
Mule Creek	1.10
Rex Lake	1.10
‡Osage	1.48
‡Cat Creek, Mont	1.48
Sunburst, Mont	1.65
‡Hogback, N. Mex	1.48
Artesia, N. Mex	1.08

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

CALIFORNIA

Standard Oil Co. of California

Santa Maria and Ventura Posted by Union Oil Co.

Gravity	Signal Hill Seal Beach Alamitos Heights Huntington Beach	Inglewood Torrance	Olinda-Brea Canon Richfield	Athens-Rosecrans Dominguez	Whittier La Habra	Coyote Hills	Santa Fe Springs	Newhall McKittrick Kern River	Midway Sunset Buena Vista & Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Montebello	Santa Maria	Ventura
14-14.9	$ .85	$ .85	$ .85	....	$ .85	$ .85	....	$ .75	$ .75	$ .75	$ .75	$ .75	$ .85	$ .85	$ .85
15-15.9	.85	.85	.85	....	.85	.85	....	.75	.75	.75	.75	.75	.85	.85	.85
16-16.9	.85	.85	.85	....	.85	.85	....	.75	.75	.75	.75	.75	.85	.85	.85
17-17.9	.85	.85	.85	....	.85	.85	....	.75	.75	.75	.75	.75	.85	.85	.85
18-18.9	.85	.85	.85	....	.85	.85	....	.75	.75	.75	.75	.75	.85	.85	.85
19-19.9	.85	.85	.85	....	.85	.85	....	.75	.75	.75	.75	.75	.85	.85	.85
20-20.9	.85	.85	.85	....	.85	.85	....	....	.77	.77	.77	.77	.86	.85	.85
21-21.9	.89	.89	.89	....	.88	.88	.89	....	.79	.79	.79	.79	.89	.86	.86
22-22.9	.93	.93	.93	....	.91	.91	.92	....	.82	.82	.82	.82	.92	.87	.87
23-23.9	.97	.97	.97	....	....	.94	.95	....	.86	.86	.85	.85	.95	.90	.90
24-24.9	1.01	1.01	1.01	1.01	....	.97	.98	....	.90	.90	.88	.88	.98	.93	.94
25-25.9	1.05	1.05	1.05	1.05	....	1.00	1.01	....	.95	.95	.91	.91	1.01	.95	.98
26-26.9	1.09	1.09	1.09	1.09	....	1.04	1.04	....	1.00	1.00	.94	.94	1.04	.97	1.02
27-27.9	1.13	1.13	1.13	1.13	....	1.08	1.07	....	1.05	1.05	.98	.97	1.07	....	1.06
28-28.9	1.17	1.17	1.17	1.17	....	1.12	1.10	....	1.10	1.10	1.02	....	1.10	....	1.10
29-29.9	1.21	....	1.21	1.21	....	1.16	1.15	....	1.16	1.16	1.06	....	1.13	.....	1.14
30-30.9	1.25	....	1.25	1.25	....	1.20	1.20	....	1.22	1.22	1.10	....	1.16	....	1.18
31-31.9	1.30	....	....	1.30	....	....	1.25	....	1.28	1.28	1.14	....	....	....	1.23
32-32.9	1.35	....	....	1.35	....	.....	1.30	....	1.34	1.34	1.18	....	....	....	1.28
33-33.9	....	....	....	1.41	....	.....	1.35	....	1.40	1.40	1.22	....	....	....	....
34-34.9	....	....	.....	1.47	....	.....	1.40	....	....	1.46	1.26	....	....	....	....
35-35.9	....	....	....	1.53	....	....	1.45	....	....	....	1.30	....	....	....	....
36-36.9	....	....	....	1.59	....	....	1.50	....	....	....	....	....	....	....	....
37-37.9	....	....	....	1.65	....	....	1.55	....	....	....	....	....	....	....	....
38-38.9	....	....	....	1.71	....	....	1.60	....	....	....	....	....	....	....	....
39-39.9	....	....	....	1.77	....	....	1.65	....	....	....	....	....	....	....	....
40-40.9	....	....	....	1.83	....	....	....	....	....	....	....	....	....	....	....
41-41.9	....	....	....	1.89	....	....	....	....	....	....	....	....	....	....	....
42-42.9	....	....	....	1.95	....	....	....	....	....	....	....	....	....	....	....

*Union Oil Co. posts same prices in all above fields as Standard except in Montebello and Wheeler Ridge. It also posts Elwood Terrace at same prices as Rosecrans—Dominguez and also posts Santa Maria (Orcutt) and Ventura.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders as effective the date shown.

Refiners' Supplies

	Sept. 17	Sept. 10
Soda Ash light 58% bags, cwt.	$1.32	$1.32
Silicate of Soda 60 deg. drums, ...cwt.	$1.65	$1.65
Silicate of Soda 40 deg. tank cars.....cwt.	$0.60	$0.60
Silicate of Soda 40 deg. drums, ...cwt.	$0.70-0.75	$0.70-0.75
Sal Soda wks.....	$0.90	$0.90
Caustic Soda 76% solid, cwt.	$2.90	$2.90
Sulfuric Acid 60 deg. tank cars, f.o.b. shipping point per ton.....	$11.00	$11.00
Oleum 20%, fuming sulfuric, tank cars, wks.....	$18.50	$18.50
Sulfur, flowers of.....cwt.	$3.10-4.00	$3.10-4.00
Liquid Chlorine, tank cars, wks.....lb.	3.50-5.00	3.50-5.00
Litharge, powdered, casks, cwt.	8.75	8.75

Compounders' Supplies

Vegetable Oils

Linseed carloads, spot....lb.	9.70	9.60
Tanks, spot.....	8.90	8.80
Soya Bean, Tanks, coast, lb.	9.75	9.75

Oleic Acid

Distilled, tanks.....lb.	9.00	9.00
Distilled, bbls.....lb.	9.75	9.75
Saponified, tanks.....lb.	9.25	9.25
Saponified, bbls.....lb.	10.00	10.00

Lard Oils

Prime Winter Strained....lb.	16.25	16.25
Extra Winter Strained...lb.	13.25	13.25
Extra.....lb.	12.75	12.75
Extra No. 1.....lb.	12.50	12.50
No. 1.....lb.	11.375	11.375
No. 2.....lb.	11.375	11.375
Tallow oil.....lb.	11.75	11.75

Neatsfoot Oil

Pure, bbls.....lb.	15.25	15.25
Extra, bbls.....lb.	12.75	12.75
No. 1 bbls.....lb.	12.00	12.00
Cold Pressed.....lb.	18.50	18.50

Fish Oils

Menhaden Oil		
Light Pressed ..... gal.	60	60
Light Pressed, tank cars, N. Y. .....gal.	54-56	54-56
White bleached.....gal.	65-66	65-66
Yellow bleached.....gal.	66-68	66-68
Whale, extra winter bleached, ...gal.	82	82

Naval Stores

Steam distilled turpentine, N. Y.....gal.	47	47
Steam distilled turpentine, Savannah.....gal.	42	42
Gum turpentine, N. Y....gal.	52	53
Gum turpentine, f.o.b. cars Savannah.....gal.	48	49
Wood Rosin F, N. Y.....bbl.	$7.80	$7.80
Wood Rosin F, Savn'h..bbl.	$7.00	$7.00
Gum Rosin B, N. Y.....bbl.	$8.85	$8.80
Gum Rosin B, f.o.b. cars Savannah ..... bbl.	$8.10	$8.05
Rosin oil, pure.....gal.	58	60
Rosin oil, compounded...gal.	49	50

Pine Tar

Kiln burnt.....bbl.	$12.50-14.00	$12.50-14.00
Retort.....bbl.	$13.50-15.50	$13.50-15.50

Alcohol

Denatured, Formula 5, in bbls., per gal.....	54-61	54-61

*Nominal.

Once an OAK distributor always an OAK distributor!

A FIFTY-FIFTY DEAL

OAK dealers stick. The distributors who started with OAK seven years ago are still selling OAK. There is a great deal of significance in this fact. It means that OAK distributors have found profit and satisfaction in the product, and conscientious co-operation from OAK'S manufacturers. In other words—a fifty-fifty deal.

OAK SOLD ON THE BASIS OF RESULTS ONLY

OAK distributors are not obliged to lean on imaginary sales props with OAK. They are furnished with material which enables them to prove what OAK will do inside of a motor at any degree of temperature, or under any condition of service.

OAK'S results are so obvious that users of OAK are constant, and a distributor's business is always steady and increasing.

DOUBLE YOUR OIL BUSINESS THIS WINTER

OAK sales will surpass those of any other oil in any given section this winter. And each sale creates such satisfaction that word-of-mouth advertising of users pyramids the sales and profits of marketers. Learn about the great OAK franchise today. Join a conservative, constructive manufacturer of a sensational product and reap a lifetime reward of profit and satisfaction.

The coupon will bring you full information. Send it today.

FRONTIER MANUFACTURING COMPANY, NORTH TONAWANDA, N. Y.

OAK Motor Oil

FRONTIER MFG. CO., Dept.
North Tonawanda, N. Y.

Without obligation send me full information about OAK MOTOR OIL.

Name .....

Address .....

.....

Transactions in Oil Shares on New York Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Sept. 15 Sales	First	High	Low	Last	Change
37⅛	27⅝	38	27⅛	(sh) 922.075	N.P.	Amerada Corp	50cQ	July 31, 28	9,500	31½	33⅝	31	32⅞	+ 1⅝
82½	35⅛	85	51¼	(sh) 209.180	N.P.	American Republics Corp	....	.....	23,400	68½	74½	67⅛	72⅛	+ 3⅞
50¼	35	53⅜	37½	$56.000.000	$ 25	Associated Oil	50cQ	June 30. 28	90	51½	51½	50	50½	— 1
131⅜	104	174⅞	95¾	50.000.000	100	Atlantic Refining	$1Q	Sept. 15. 28	132,000	170¾	*174⅞	168	173¾	+ 2
119	115½	118¼	114½	20,000,000	100	do pfd	$1.75Q	Aug. 1, 28	100	114½	114½	†114½	114½	— 1½
35½	20¾	36¼	20⅛	28,725,675	25	Barnsdall Corp. A	....	Feb. 6, 28	288,300	31⅞	*36¼	29¾	36	+ 5
32½	20½	30¾	22	799,775	25	do B	....	Feb. 6, 28	400	32⅜	35	32⅜	35	+ 4¼
18¼	14	20¼	12¼	945,888	N.P.	Beacon Oil	.....	.....	33,200	17⅝	19⅛	16⅜	18	+ 1⅝
32⅞	20	32¾	24	51.524.150	25	California Petroleum	25cQ	July 2, 28	900	35⅛	36	34¾	35¾	— ½
96¾	65	94⅞	70	20.785.400	100	General Asphalt	.....	.....	15,800	76⅞	78½	74½	76½	— ½
144⅞	107¼	141½	111	6,792.200	100	do pfd	$1.25Q	Sept. 1, 28	.....	.....	.....	.....	.....	.....
175⅜	60⅛	167	127	25.000.000	100	Houston Oil	.....	.....	10.700	144	144¾	138¼	141	— 2
32¾	17⅜	31⅞	21¾	(sh) 500.000	N.P.	Independent Oil & Gas	25cQ	July 31. 28	26,100	28⅜	29⅜	27⅛	29½	+ 2
12⅛	7⅝	39⅜	9	$3,280.340	$10	Indian Refining	....	Dec. 15, 20	33.900	33	34	30½	32⅝	+ ⅛
12	7¼	37¼	8½	4,550.110	10	do ctfs	....	.....	22,100	30¼	31½	28⅝	30⅞	+ ⅝
112	99	250	101	2.296.400	100	do pfd	.....	Dec. 15, 21	300	240¼	240¼	239	240¼	— 9¾
37¾	20½	39½	27⅜	(sh) 3.992.122	N.P.	Lago Oil & Transport	75cQ	May 1, 28	2,300	31¼	33¼	30½	33¾	+ 2
18⅞	10	19¾	9⅜	(sh) 1.237.078	N.P.	Louisiana Oil Refining	.....	.....	13,900	15¼	15¾	14½	15¾	+ ¾
97	85¼	101	78	$4.000.000	$100	do pfd	$1⅝Q	Aug. 15, 28	.....	.....	.....	.....	.....	.....
22¾	12	25½	12½	(sh) 330.000	N.P.	Maracaibo Oil	....	.....	1,600	17½	17½	16¼	17	— ⅝
58½	31	44½	33	(sh) 2.316.692	N.P.	Marland Oil Co	....	Mar. 31. 27	42,100	38½	40¾	38	40½	+ 1⅝
320	200	360	250	$45.942.800	$100	Mexican Petroleum	$3Q	July 20. 28	40	265	265	265	265	+15
.....	.....	.....	.....	12.000.000	100	do pfd	$2Q	July 20. 28	.....	.....	.....	.....	.....	.....
9¾	3	39	4⅝	(sh) 945.939	N.P.	Mexican Seaboard	....	Nov. 15, 24	46.200	29½	30¾	28½	29⅞	— ⅛
39⅜	25½	37½	25½	(sh) 1.357.461	N.P.	Mid-Continent Petroleum	....	Aug. 1 27	153,700	32½	*37⅛	31¾	37⅛	+ 4⅝
105	97	115⅛	103¼	$6.718.000	$100	do pfd	$1.75Q	Sept. 1, 28	200	110	110⅛	110	110⅛	— 2⅛
3¾	1⅜	7⅜	2⅜	24.298.850	10	Middle States	....	July 1, 23	13,800	4⅝	4¾	4⅜	4⅜	0
2¾	1⅜	5⅞	1½	5.501.370	10	do ctfs	....	.....	1,700	3½	3½	3⅛	3⅜	0
1⅞	1	2¼	1¼	(sh) 3.500.000	N.P.	Pacific Oil	....	.....	7,200	1⅛	1¼	1	1	— ⅛
65⅞	40⅛	53¾	38¼	$48.807.400	$ 50	Pan American P. & T	....	Oct. 20. 27	8,400	40¾	44½	40¼	44¾	+ 3¾
66⅜	40¼	54⅝	37⅜	121.097.900	50	do B	....	Oct. 20. 27	61,100	41¼	46½	40½	46½	+ 5
37⅞	16¾	28⅜	15½	(sh) 400.000	N.P.	Pan American Western B	....	Jan. 30. 27	1,400	17⅞	17⅞	17	17⅞	+ ⅞
18⅞	8	21¾	11½	(sh) 198.770	N.P.	Panhandle P. & R	....	.....	600	14½	15¼	14½	15¼	+ ¾
83	54	106¼	70	$2.935.200	$100	do pfd	.....	July 2, 23	400	85	85	81	81	— 4
60¼	36¼	44⅜	35¼	(sh) 2.406.796	N.P.	Phillips Petroleum	37½cQ	July 2, 28	47,900	40½	41¾	39¼	41½	+ 1⅛
1⅜	1½	4¼	1½	$29.622.925	$ 25	Pierce Oil Corp	....	.....	7,400	2¾	2¾	2½	2⅝	— ⅛
24	13½	30½	16¼	15.000.000	100	do pfd	....	Feb. 1, 22	5,500	22¾	24¾	22¾	24½	+ 2½
5½	2¼	6⅝	3½	(sh) 2.500.000	N.P.	Pierce Petroleum	....	.....	8.300	4½	4¼	4	4⅛	0
33⅞	16⅜	26⅞	16	$37.450.850	$50	Producers & Refiners	....	Sept. 15, 23	4,300	24	25⅜	24	24⅞	— ⅝
50	36⅜	46⅞	41	2.845.350	50	do pfd	.....	May 1, 25	140	44¼	44¼	42¼	42¼	— ¼
33½	25	27½	19	75.959.250	25	Pure Oil Co	12½cQ	Sept. 1. 28	16.500	23⅞	25	23⅜	25	+ 1
115½	111⅜	115	108	13.000.000	100	do 8% pfd	$2Q	July 2. 28	160	113	113	112½	112⅜	+ 1⅜
28⅝	25⅜	50⅜	24	$29.224.894	$25	Richfield Oil	‡25cQ	Aug. 15, 28	65,300	49⅞	51	48	51	+ 1
54½	44¼	59¼	44⅜	(sh) 611.303	13.40	Royal Dutch, N. Y. shares	$1.879	Aug. 3 28	2,100	57¾	58½	56⅞	58½	+ ¼
47⅞	41⅜	51¼	40⅝	(sh) 77.590	1.2	Shell Transport & T	$1.455	July 23. 28	300	50½	51⅛	50⅛	51⅛	— ⅛
31¾	24⅝	31	23¼	(sh) 10.000.000	N.P.	Shell Union Oil	35cQ	June 30. 28	23,800	27½	27⅞	26⅞	27¾	+ ⅜
26⅜	14¼	24¾	18⅛	$7.208.080	$ 10	Simms Petroleum	....	Apr. 1, 27	4.400	21¾	22⅜	21	22⅜	+ ¼
22⅜	15	30¾	17⅜	(sh) 4.501.915	N.P.	Sinclair Consolidated	....	May 31. 24	90.100	27½	27⅞	26	27⅜	+ ¾
104½	97	109½	102½	$16.604.600	$100	do pfd	$2Q	Aug. 15, 28	200	108	108	107¾	107¾	+ ¼
37⅜	24⅛	34	25	27.396.590	25	Skelly Oil Co	50cQ	June 15, 28	76 000	33	34⅜	32⅛	34¼	+ 1½
60¾	50⅜	63⅞	53	(sh) 13.016.434	N.P.	S. O. California	62½cQ	Sept. 15, 28	15.000	59½	60	58½	60	+ 1
41⅜	35⅛	49	37¾	$607.910.525	$ 25	S. O. New Jersey	‡25cQ	Sept. 15, 28	84.600	45⅛	45⅞	44¾	45⅞	+ ⅝
34⅛	29¾	41½	28¾	427.973.275	25	S. O. New York	40cQ	Sept. 15, 28	69,500	36	36¾	35¼	36¼	+ ⅛
34⅞	30	57½	31½	(sh) 1.206.073	N.P.	Sun Oil	25cQ	Sept. 15. 28	7,300	56⅞	*57½	55⅞	57	0
101⅝	99	109½	100	$5.000.000	$100	do pfd	$1.50Q	Sept 1. 28	.....	.....	.....	.....	.....	.....
6½	3⅛	9½	2½	(sh) 1.121.368	N.P.	Superior Oil Corp	.....	Dec. 20. 20	5.700	6¾	6¾	6⅛	6½	— ⅛
58	45	72⅞	50	$180.480.550	$ 25	The Texas Corp	75cQ	July 2, 28	419,500	68¼	*72⅞	67⅛	72	+ 3¾
18⅞	12	17½	12½	8.380.340	10	Texas Pacific Coal & Oil	....	Jan. 3. 28	10.900	13¾	14⅜	13⅝	14	+ ¼
29⅜	19	30½	19⅝	(sh) 2.168.410	N.P.	Tide Water Oil Co	20cQ	June 30. 28	7,700	29¾	*30½	29⅛	30½	+ ¾
90⅛	85	94½	87	$20.705.200	$100	do 5½% pfd	$1 25Q	Aug. 15. 28	700	90¾	91	90	90¾	0
19⅛	15¾	24¾	14¾	(sh) 4.796.158	N.P.	Tide Water Associated	.....	Aug. 1. 27	243.200	24¾	*24¾	23½	24⅛	— ⅝
90¾	85	90¾	82⅛	$72.745.900	$100	do pfd	$1.50Q	July 2, 28	900	90	90½	89⅞	90	— ¼
10⅜	3¾	10⅛	7	(sh) 3.742.029	N.P.	Transcontinental Oil	.....	.....	48.800	7⅞	8⅜	7¾	8¼	+ ½
56½	39⅝	57	42¾	$40.791.225	$ 25	Union Oil of California	50cQ	Aug. 10. 28	15.100	50¾	52½	50⅛	51⅜	+ ⅜
127½	94	128⅛	115	30.844.000	100	Union Tank Car Co	$1 25Q	Sept. 1. 28	1,700	114	114¾	112	112	— 3
34½	24½	42¾	26	(sh) 355.440	N.P.	Warner Quinlan	50cQ	July 2, 28	22,800	41¾	41⅞	39½	40⅝	— ½
27½	20	28⅜	20⅛	(sh) 490.000	N.P.	White Eagle Oil & Refining	25cQ	July 20, 28	42,700	26	*28⅜	25⅞	28¼	+ 2¼

*New High †New Low ‡Also extras s-Stock Total Sales 2,289,930

Pittsburgh Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended Sept. 14 Sales	First	High	Low	Last	Change
....	....	4	2½	N.P.	Ark. Nat. Gas (new)	5,618	2⅞	2⅞	2¾	2⅞	0
....	....	7½	6¾	N.P.	do pfd	3,038	7¼	7⅜	7¼	7⅜	+ ⅛
98⅛	80⅞	120¼	90¼	100	Colombia Gas	.....	.....	.....	.....	.....	.....
107⅞	100	124	107	100	do pfd	.....	.....	.....	.....	.....	.....
15	7½	10	6¼	10	Devonian Oil	10	7¼	7¼	7¼	7¼	0
....	....	15	9	10	Dixie Gas & Util	.....	.....	.....	.....	.....	.....
....	....	95	85	100	do pfd	.....	.....	.....	.....	.....	.....
117½	115	116	115	100	Duquesne Light pfd.	.....	.....	.....	.....	.....	.....
....	....	85	80½	100	Fayette County Gas	.....	.....	.....	.....	.....	.....
12¼	6	22	12	N.P.	Houston Gulf Gas	.....	.....	.....	.....	.....	.....
59¾	37¼	58	48⅝	$ 25	Lone Star Gas	6,459	54	55	54	54½	+ ½
....	....	38	36	25	Petroleum Exploration	10	38	*38	38	38	+ 2
....	....	.50	.50	....	Phoenix Oil pfd	.....	.....	.....	.....	.....	.....
3⅜	3	4	3	5	Pittsburgh Oil & Gas	.....	.....	.....	.....	.....	.....
8	5½	7¼	6	10	Salt Creek Cons	170	6¾	6¾	6¼	6¼	— ½
26½	17	22	16¾	10	Tidal Osage	.....	.....	.....	.....	.....	.....
43	33	33⅝	30½	N.P.	Waverly Oil Wks. A	100	33	33	33	33	— 3
....	....	19	17	$ 25	Wiser Oil	350	17	17	†17	17	— ½

*New high record †New low.

Pittsburgh Curb Exchange

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended Sept. 14 Sales	First	High	Low	Last	Change
95	88	132	120	25	Gulf Oil	.....	.....	.....	.....	.....	.....
....	....	115	115	....	Houston Gulf Gas pfd.	.....	.....	.....	.....	.....	.....
10¾	5½	9	5½	25	Leonard Oil & Dev	700	6¼	6¼	6¼	6¼	+ ¼
2¾	1¾	....	....	5	Pittsburgh Oil Dev	.....	.....	.....	.....	.....	.....
31	19	22	16¾	5	Plymouth Oil	5,710	19½	19½	19	19	0
6	5	4¾	4	5	States Oil	.....	.....	.....	.....	.....	.....
3¼	1⅛	6¼	2¼	1	Texon Oil & Land	250	6¼	*6¼	6¼	6¼	0
23⅛	18	18	15	10	Tidal Osage Non-vgt.	.....	.....	.....	.....	.....	.....

*New High †New Low x Ex Dividend

Oil Company Earnings

First Half	1928	1927
Indian Refining	$110,533	$20,642

Oil Dividends

	Amount	Payable	Stock of Record
Beacon Oil pfd. q	$1.87½	Nov. 15	Nov. 1
British American q	25c	Oct. 1	Sept. 14
Prairie Pipe Line q	$3.50	Oct. 31	Sept. 29
Richfield Oil pfd. q	43¾c	Nov. 1	Oct. 5
Shaffer Oil pfd. q	$1.75	Oct. 25	Sept. 30
White Eagle q	50c	Oct. 20	Sept. 28

Cleveland Stock Market

Sept. 14	Par Value	Bid	Asked	Last Sale
Canfield Oil	100	140	150	135
do pfd	100	102	...	101
Fred G. Clark	10	6	7½	7
National Refining	25	35	37	36
do pfd	100	x130	134	132½
Paragon Refining Co	25	19	20	20
do pfd	100	125	128	126
ct'fs of dep	...	18	20	19

THE FASTEST VISIBLE

Fills In 20 Seconds
Drains In 20 Seconds

Astral Glass Bowls
Make Gas Look Like Crystal

Biggest Value On The
Market—Wet or Dry Hose

Simplified, Trouble-proof
Design

A Revelation In Ease Of
Operation, Speed and
Satisfaction

Meets Requirements
Of All States

Commanding, Dignified
Appearance Attracts
Trade

Used By More Than
1000 Oil Companies

PRICES

Type 585—Hand—Bottom Up Serve	$112.
Type 625—Hand--Top Down Serve	117.
Type 586—Motor—Bottom Up Serve	170.
Type 626—Motor—Top Down Serve	175.

F. O. B. Milwaukee

Eye Measure Visibles Also

MILWAUKEE TANK WORKS
Milwaukee, Wisconsin
New York—Woolworth Bldg.

MILWAUKEE
The Pump of Compulsory Accuracy

Standard Oil Stocks on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Sept. 15 Sales	First	High	Low	Last	Change
21⅝	17⅞	22⅜	17	£ 4,126,460	£ 1	Anglo-American Oil	24.4c	June 6, 28	4,100	18⅛	19¼	18⅛	19	+ 1⅛
21½	17⅝	20½	16⅜	.....	£ 1	do cts. non-voting	.....	.....	1,900	17¾	19¼	17¾	19	+ 1⅛
3⅜	¾	5	1¼	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	10,900	2⅜	4¼	2⅜	3⅝	+ 1½
6½	2½	9¾	3¼	$ 10,000,000	$ 50	do pfd	.....	.....	900	5¾	9¾	5½	9	+ 4
69	50	56	49	1,000,000	25	Borne Scrymser	‡$18.A.	Apr. 16, 28	200	53	53	53	53	0
60	45	76	58	10 000 000	50	Buckeye Pipe Line	‡$1Q	Sept. 15, 28	200	63¼	63¼	62¼	62⅞	— ⅛
126	76½	161	117½	3,000,000	25	Chesebrough Mfg	$1Q	June 30, 28	200	145	145	140	140	— 5
22⅝	16¼	23	16	36,123,350	10	Continental Oil	.....	Dec. 15, 27	9,400	17⅜	17½	16¾	17½	+ ½
137	89	114	88	3,000,000	100	Cumberland Pipe Line	$15	Sept. 15, 28	.....	.....	.....	.....	.....	.....
68½	47	88	64⅛	5,000,000	100	Eureka Pipe Line	$1Q	Aug. 1, 28	50	70	70	70	70	+ 1
13½	3½	13	5	16,000,000	100	Galena Signal Oil	.....	June 30, 25	300	8	8	7⅝	7⅝	— ⅜
59¾	23	87⅞	27	4,000,000	100	do new pfd	.....	June 30, 26	750	83½	83½	81	81	— 3
60⅛	35½	89¾	35	2,000,000	100	do old pfd	.....	June 30, 26	430	83	83½	81	81	— 4½
68½	54	84⅞	60	73,685,700	25	Humble Oil & Refining	‡30cQ	July 1, 28	28,500	82⅞	83⅝	80½	83⅛	+ 1⅛
182	123¾	245	176½	20,000,000	100	Illinois Pipe Line	$6S.A.	June 15, 28	500	229	229	224	227	— 5½
64¾	37¾	76½	56¾	(sh) 6,591,458	N.P.	Imperial of Canada	‡25cQ	Sept. 1, 28	7,900	72¾	*76½	71½	75¾	+ 3
94½	61	89½	74⅞	$ 5,000,000	$ 50	Indiana Pipe Line	‡$1Q	Aug. 15, 28	800	80½	81½	80	81	+ 1
39	28¼	45¼	35	(sh) 7,123,544	N.P.	International Petroleum	25c	June 30, 28	19,400	37⅝	39¼	37⅛	39	+ 1
24	13¾	32⅝	19⅜	6,363,350	12.50	National Transit Co	‡25cQ	Sept. 15, 28	800	21⅞	21⅞	20¾	21	— 1
44½	31¼	59⅛	37½	5,000,000	100	New York Transit	.....	July 15, 26	150	53½	53½	53½	53½	0
100	70	125	94	4,000,000	100	Northern Pipe Line	(a)$3S.A.	July 2, 28	350	106	106	103½	103½	— 2⅜
67⅞	52	68¼	58	60.000.000	25	Ohio Oil Co	50cQ	Sept. 15, 28	2,800	62¼	62½	61½	61⅝	+ 1⅛
39	12	84	28	10,000,000	25	Penn Mex. Fuel	$1.25	May 31, 28	900	36	37	35	37	+ 2
55½	45⅜	56	46	60,479,000	25	Prairie Oil & Gas	.....	Aug. 31, 27	8,000	46½	47½	†46	47¼	+ ¾
190	132	223	172	81,000,000	100	Prairie Pipe Line	$3.50Q	July 31, 28	1,200	183	190	182½	188½	— 2½
201½	175½	186	167	4,000,000	100	Solar Refining	$5S.A.	June 20, 28	50	180	180	180	180	— 1
27¼	15½	35⅞	12	1,000,000	10	Southern Pipe Line	$2	Dec. 1, 27	100	17	17	16¾	17	+ 2½
41½	35	53	36¾	20,000,000	25	South Penn Oil	50cQ	June 30, 28	4,600	49½	50½	49	49¾	+ ¼
83	55½	100¾	70	3,500,000	100	South West Pa. Pipe Lines	‡$1Q	July 2, 28	.....	.....	.....	.....	.....	.....
81½	64⅝	83⅜	70⅞	230,788,513	25	S. O. Indiana	‡62½cQ	Sept. 15, 28	20,100	77	77⅜	75¼	77⅜	+ ⅜
20⅞	14⅝	27¾	15	8,000,000	25	S. O. Kansas	.....	June 16, 24	2,300	22	22	21	22	— ⅛
130	111½	136⅛	122¼	17.103,011	25	S. O. Kentucky	$1Q	June 30, 28	2,600	126½	127½	126⅛	126¼	— 1¼
49½	40	45⅞	39⅞	4,601.100	25	S. O. Nebraska	62cQ	June 20, 28	200	43½	43½	43½	43½	0
87½	72	84¾	71	14,000.000	25	S. O. Ohio	62½cQ	Apr. 2, 28	1,500	83½	84½	82½	84	+ ½
122	117¼	125	117	7,000.000	100	do pfd	$1.75Q	Sept. 1, 28	.....	.....	.....	.....	.....	.....
21	14½	26	16	30,844,000	25	Swan Finch Co	30cQ	June 30, 28	.....	.....	.....	.....	.....	.....
.....	.....	87⅛	72	124,941,600	25	Vacuum Oil	75cQ	June 20, 28	3,800	80⅝	81¾	80⅛	81	— ⅛

*New high †New low xEx dividend ‡Also extras. (a)$50 Special Sept. 1, 1928.

Independent Oils on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Sales	First	High	Low	Last	Change
2⅛	.55	1½	.65	$ 5	Amer. Con. Oilfields	2,900	.74	.74	.66	.69	+ .01
7½	2¾	6⅝	3⅛	N.P.	Amer. Maracaibo	7,600	4½	4⅞	4½	4⅞	+ ⅛
2¾	1	4	2¼	$ 10	Argo Oil	800	2⅝	2⅞	2⅝	2⅞	0
9¾	6¾	10¼	7¾	10	Arkansas Nat. Gas	.....	.....	.....	.....	.....	.....
40	20½	40½	32¾	N.P.	British American	200	39½	39½	39½	39½	— ⅛
28¼	15½	23⅞	12½	25c	Carib Syndicate N	1,800	13	13	†12½	13	0
.....	.....	.....	.....	.....	do ctfs. of dep	.....	.....	.....	.....	.....	.....
58¾	40¼	71¼	54	$ 20	Cities Service	12,000	67¼	68	67⅛	68	+ ⅛
95½	87	103½	94½	100	do pfd	900	99½	100	99½	99¾	+ ⅞
8⅛	7⅛	9⅝	8⅛	10	do pfd. B	100	9⅜	9⅜	9⅜	9⅜	0
29¼	22½	94	28¼	10	do banker's shares	.....	.....	.....	.....	.....	.....
3⅞	1½	2¼	1⅛	1	Colombia Syndicate	2,600	1¼	1⅜	1⅛	1⅜	+ ⅛
9⅜	6⅜	8⅛	6⅜	10	Consolidated Royal	.....	.....	.....	.....	.....	.....
14⅜	9½	17½	10	N.P.	Creole Syndicate	14,000	12⅝	13	12⅛	13	+ ½
3	.50	3¼	.76	N.P.	Crown Central	700	1⅞	1⅞	1⅝	1⅝	0
12	4	30⅛	8¼	N.P.	Darby Petroleum	2,600	22¼	22⅝	21½	21½	— ⅞
11½	4	13⅛	7⅞	....	do trust ctfs	.....	.....	.....	.....	.....	.....
2½	.74	22	1	N.P.	Derby Oil & Refining	800	1⅝	1⅝	1½	1½	0
16¾	4	15½	7½	N.P.	do pfd	100	14½	14½	14½	14½	0
3¾	1	2	1	N.P.	Gibson Oil	.....	.....	.....	.....	.....	.....
2	.40	.53	.15	N.P.	Gilliland ctfs	.....	.....	.....	.....	.....	.....
118	86¼	148½	101⅜	$ 25	Gulf Oil Corp	5,800	127⅞	127⅞	124	126¾	+ ⅜
2½	.80	7⅞	1	10	Intercontinent Pet	3,500	1¼	1½	1⅛	1⅜	0
2¼	1⅛	3	1¼	N.P.	Kirby Petroleum	900	1⅜	1½	1¼	1½	0
10⅞	5⅜	9⅜	5¾	N.P.	Leonard Oil & Dev	6,300	6⅛	6⅜	6	6⅜	— 6
27½	20	32⅜	20	N.P.	Lion Oil & Refg	3,800	28¼	30½	28¼	30½	0
59⅜	37	57	48⅝	$ 25	Lone Star Gas	5,800	54¼	55½	53¾	54⅜	+ ⅜
2⅞	.80	1⅞	.54	1	Magdalena Synd	58,800	84	84	†54	65	—18
21½	20⅞	22⅛	22⅛	N.P.	Manhattan Oil	.....	.....	.....	.....	.....	.....
52	12	45	36½	N.P.	Margay Oil	.....	.....	.....	.....	.....	.....
3	1½	40½	40½	$ 10	Mexican-Panuco	.....	.....	.....	.....	.....	.....
12⅛	5	8	4	N.P.	Mexico-Ohio Oil	600	4⅝	4⅝	4½	4½	0
1½	1	1½	.76	$ 1	Mountain & Gulf	2,000	83	83	81	83	+ 1
29¼	22¾	28⅝	21½	10	Mountain Producers	14,100	22¼	22⅞	†21½	22⅛	— ⅜
5⅞	4⅝	5⅝	4¼	5	New Bradford	1,600	4⅞	4⅞	†4¼	4½	— ½
6¼	4	5⅜	3⅝	10	New England Fuel	.....	.....	.....	.....	.....	.....
16	9¼	11⅜	7⅛	1	New Mex. & Ariz	2,800	9¾	10	8¾	8¾	— 1¼
13⅞	9	15½	11½	25	New York Oil	.....	.....	.....	.....	.....	.....
12¾	9½	13¼	10¾	N.P.	North Cent. Texas	300	12⅜	12½	12¼	12¼	— ¼
23⅞	21¼	...	...	...	Okla. Nat. Gas ctfs	.....	.....	.....	.....	.....	.....
9⅜	3¼	6	2¼	N.P.	Pandem	2,600	2⅜	2⅜	2⅜	2⅞	— ⅛
12⅜	7	15⅝	8½	N.P.	Panapec Oil	14,900	13¼	13⅜	12¼	13	0
9	7⅜	20	10⅝	$ 25	Paragon Refg	200	18	*20	18	20	+ 3
.37	.25	9	4	N.P.	Peer Oil Corp	.....	.....	.....	.....	.....	.....
13⅛	5⅛	7¾	5¼	10	Pennok Oil	300	5½	5½	5½	5½	— ½
...	...	4⅛	3⅛	5	Pittsburgh Oil & Gas	.....	.....	.....	.....	.....	.....
24⅜	7	14⅜	8	25	Red Bank Oil	.....	.....	.....	.....	.....	.....
15¼	3½	13	4⅛	N.P.	Reiter-Foster	10,000	10⅛	10¼	9	10¼	0
28⅜	15	31½	18	$ 25	Richfield Oil pfd	300	24	24⅛	24	24⅛	+ ⅛
7	4½	9⅞	4⅝	N.P.	Ryan Consolidated	1,300	5¾	5⅞	4⅞	5⅞	0
8	5¼	7¼	5¾	$ 10	Salt Creek Cons	900	6⅛	6½	6⅛	6⅜	+ ⅛
35⅛	27¼	35	23½	10	Salt Creek Prod	14,000	25¾	26¼	†23½	25¾	+ ⅛
7	1¼	3⅛	1	5	Savoy Oil	.....	.....	.....	.....	.....	.....
26⅛	17	22⅝	13	10	Tidal Osage	400	17⅝	18¾	17⅝	18	— 1
23¾	15	21¼	13⅛	10	do non-voting	500	19	19	17⅛	17½	— 1½
92	63½	87	75	100	Transcontinental pfd	200	80	82	80	80¼	+ 3¼
23¼	7	53½	18	10	Venezuela-Mexico	.....	.....	.....	.....	.....	.....
7⅜	4¼	6⅝	4⅞	5	Venezuelan Petrol	1,800	4⅞	5	4⅞	4⅞	0
32⅝	19½	25	15¼	N.P.	Wilcox Oil & Gas	1,600	17⅞	17⅞	†15¼	17¼	— ⅝
8	4⅜	8¼	4⅞	$ 1	Woodley Petroleum	700	5¼	5⅜	4⅞	5	— ½
6	1¾	8⅜	2⅛	25	Y Oil & Gas (new)	300	4¾	4¾	4½	4½	— ½

*New High †New Low xEx Dividend

New York Curb Bonds

Week Ending Sept. 14

	High	Low	Last	Ch'ge
Beacon Oil 6s '36	105¼	104	105½	+ ½
Cities Service 5s '66	95	94⅛	94¾	0
Cities Serv. 6s '66	103⅜	103⅜	103⅜	0
Cities Serv. G 5½s '42	94	93½	94¾	+ ⅛
Cont. Oil 5½s '37	95½	95	95	— ½
Empire O & R 5½s '42	92⅞	92½	92⅝	0
Galena Oil 7s '30	100¾	100⅝	100⅝	+ ⅛
Gulf Oil 5s '37	100¼	100	100¼	+ ⅜
Gulf Oil 5s '47	100¼	100	100	+ ⅛
Independent Oil 6s '39	102	101	102	+ ¾
Richfield Oil 6s '41	141¼	116	140	—4¼
Richfield Oil 5½s '31	101½	100¼	100¾	— ¾
Sun Oil 5½s '39	101	100½	101	+ ½
Trans. Cont. Oil 7s '30	106	105¾	106	—1
Warner Quinlan 6s '42	117½	112⅝	115¼	— ¾

New York Bonds

Week Ending Sept. 14

	High	Low	Last	Ch'ge
Assoc. Oil gold 6s	103	102	102⅞	0
Atlantic Refg. deb. 5s	101⅛	100¾	101⅜	0
Barnsdall Corp. 6s	114¼	105⅛	114¼	—1
Barnsdall Corp. 8s ex-war	93	89⅞	93	+2¾
Cal. Pet. 5s	101⅞	100	101⅞	+1⅞
Cal. Pet. 5½s	102	101¼	102	+ ¾
General Asphalt 6s	109	108	109	+ ½
General Petroleum 5s	100⅝	100¼	100⅜	— ¼
Humble Oil & Refg. 5½s	101½	101	101¼	+ ½
Humble Oil & Refg. 5s	100	99½	99¾	0
Mid-Cont. Pet. 6½s	105¼	105	105	— ½
Pan Amer. P & T 7s	104⅞	104¾	104⅞	+ ½
Pan Amer. P & T 6s	102¾	102½	102½	0
Pan Amer. P & T 6s	94½	93½	94	+ ¼
Pierce Oil deb. 8s	106	106	106	— ¾
Pure Oil 5½s	99	98⅝	99	— ⅛
Shell Union Oil 5s	97½	96¼	96¾	— ¾
Simms Pet. 6s	102⅛	102¼	102¼	0
Sinclair Con. Oil 7s	102	101¼	101¾	+ ½
Sinclair Con. Oil 6½s	99⅞	99	99⅜	— ½
Sinclair Con. Oil 6s D	98¾	98¼	98½	0
Sinclair Con. Oil Crude 5½s	98	97½	97¾	0
Sinclair Pipeline	95	93½	93½	— ½
Skelly Oil 5½s	92¼	92	92	— ¼
S. O. N. Y. 4½s	95⅜	95	95⅛	— ⅛
S. O. N. J. deb. 5s	102¾	102⅜	102⅝	+ ⅛
Union Oil of Calif. 5s C	98	87⅝	98	+ ⅜
White Eagle Oil 5½s	98½	97	98½	+ ⅛

LOS ANGELES, Sept. 14.—Martin Loomis Corp., announces a change of address to 2827 Cherry avenue, Long Beach, where the company has erected a new shop and office building.

Standard Dividends Pass $50,000,000

NEW YORK, Sept. 15

THE Standard Oil group of companies will pay out $50,077,439 in cash dividends in the third quarter of this year, according to records compiled by Carl H. Pforzheimer & Co., specialists in these securities.

Declarations have already been made by all of the companies which pay substantial amounts with the exception of Prairie Pipe Line Co. and this disbursement is estimated at the usual rate of $3.50 a share.

The disbursements exceed those for the third quarter of 1927 by $2,349,000 because the Northern Pipe Line Co. paid $2,000,000 and Cumberland Pipe Line Co. $450,000 as special payments in the course of reducing their capitalizations and par values.

Distributions in the second quarter of this year included a number of semi-annual dividend payments as well as special dividends by the National Transit Co. and Southern Pipe Line Co. also made in the process of recapitalization.

Dividend payments for the first nine months of this year totaled $156,699,315 as against $157,893,468 paid in the first three quarters of 1927 and exceed the amount of dividends paid by this group of companies in the entire year of 1925.

The record of third quarter cash disbursements the last few years follows:

	Third Quarter
1928	$50,077,439
1927	47,728,440
1926	46,427,278
1925	35,140,584
1924	34,712,810

Financial Notes

Sinclair Consolidated Oil Corp.—Fred H. Bartlett, Chicago, elected a director.

Galena Signal Oil Co.—Time for deposition of stock under reorganization plan has been extended to Sept. 28. Sept. 15 stock deposited had amounted to 69 per cent of the preferred and 64 per cent of the common.

White Eagle Oil & Refining Co.—Dividend basis raised from $1 to $2 a year with the declaration of 50 cents a share payable Oct. 20 to stock of Sept. 28 record. This company paid at the rate of $2 a year until last December when the rate was reduced one half. Company's sales in August were reported to have exceeded August, 1927, sales by 10 per cent.

Richfield Oil Co.—Offer to exchange Richfield stock for Pan American Western Petroleum Co. class B stock has been extended to Nov. 11.

THE OIL INDUSTRY EXCHANGE

Positions Wanted

REFINERY SUPERINTENDENT, eighteen years experience, thoroughly familiar with designing, construction and operation of modern skimming, lubricating and cracking plants. Address Box 129.

SALES WORK

New York Metropolitan district and vicinity. Field or office. Wide experience with high grade lubricants, Industrial and Automotives. Would invest with producer for distributor rights. Clean record. Highest references. Address L. F. J. Room 916, No. 342 Madison Ave., N. Y. C.

Situations Open

WANTED FOR FOREIGN SERVICE

Lubricating Oil Expert and Engineer with a thorough knowledge of lubricating oils, their uses and application. One who speaks or has a good working understanding of Spanish preferred.

Address Box 169

MAN WANTED to associate himself in jobbing business in southern Michigan on basis of reasonable salary and profit sharing plan. No investment necessary. Present business doing about 300,000 gallons yearly. Properties include 2 filling stations. Owner has other interests elsewhere so needs someone to take entire charge and develop business. Address Box 168.

REFINERY SUPERINTENDENT WANTED

To take charge of 5000-barrel refinery. Must have technical training.

Address Box 160

TANK CAR SALESMAN

ORGANIZATION: Major oil company operating in Eastern States.

DUTIES: Selling lube and refined oils to the jobbing trade.

EXPERIENCE: Applicants must have good business background, with several years actual experience in Eastern States selling to oil jobbers and assisting them in sales.

PERSONAL: Must be 25 to 35 years of age; at least high school education.

SALARY: Starting rate depends on experience—Future salary based on results.

In answering state age, education and previous experience, giving names of the firms you worked for as well as the names of your supervisors. Enclose a photograph if you have one available.

NOTE: We solicit replies from our own men.

Address Box 170

Situations Open

SALESMAN

Wholesale petroleum products, Illinois territory. State age, education, experience, salary expected, and full particulars.

Address Box 171

Patent Attorneys

INVENTORS who derive largest profits know and heed certain simple, but vital facts before applying for patents. Our book, Patent Sense, gives those facts, free. Lacey & Lacey, 679 F. St., Washington, D. C. Established 1869.

Business Opportunities

JOBBERS & MARKETERS

Buyer and Shipper, nine years refinery acquaintance; can personally handle few more accounts. Correspondence solicited.

ELLIS SLACK
1027 Hunt Bldg. Tulsa, Okla.

For Sale

USED 600-GALLON KETTLE FOR SALE. Steam jacketed on bottom only. Equipped with agitator apparatus. Also Rosin Melting Tank, 4'3" diameter by 3'4" high. Steam jacketed on bottom with steam coils inside. Above equipment in good condition and reasonable in price. Address P. O. Box 611, Erie, Pa.

TRIBAL OSAGE OIL LEASES AT PUBLIC AUCTION, SEPTEMBER 27, 1928, BY UNITED STATES GOVERNMENT. September 27, 1928, at Pawhuska, Oklahoma, about 20,000 acres will be offered for oil leases in quarter section tracts. Bids will be for bonus in addition to royalties, 25% payable on day of sales, balance in three annual instalments, with acceptable security. Within advertised area there are about 9,875 wells producing from one barrel to 400 barrels each, the total daily production for June, 1927, being about 53,000 barrels; also, there are about 40 wells drilling. All lands are now leased separately for gas. Blue print maps of area advertised, showing tracts producing oil or gas, can be had for fifty cents each, also logs of producing oil or gas wells for twenty-five cents each well. Write U. S. Superintendent, Osage Agency, Pawhuska, Oklahoma, for maps, logs or other information.

Miscellaneous

WHAT IT COSTS

"For Sale," "Wanted to Buy," "Help Wanted," "Business Opportunities."

"Miscellaneous" classifications, set in type this size without border—10 cents a word. Minimum charge, $3.00.

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Advertisements set in special type or with border—$4.00 per column inch.

Copy must reach us not later than Friday preceding date of issue.

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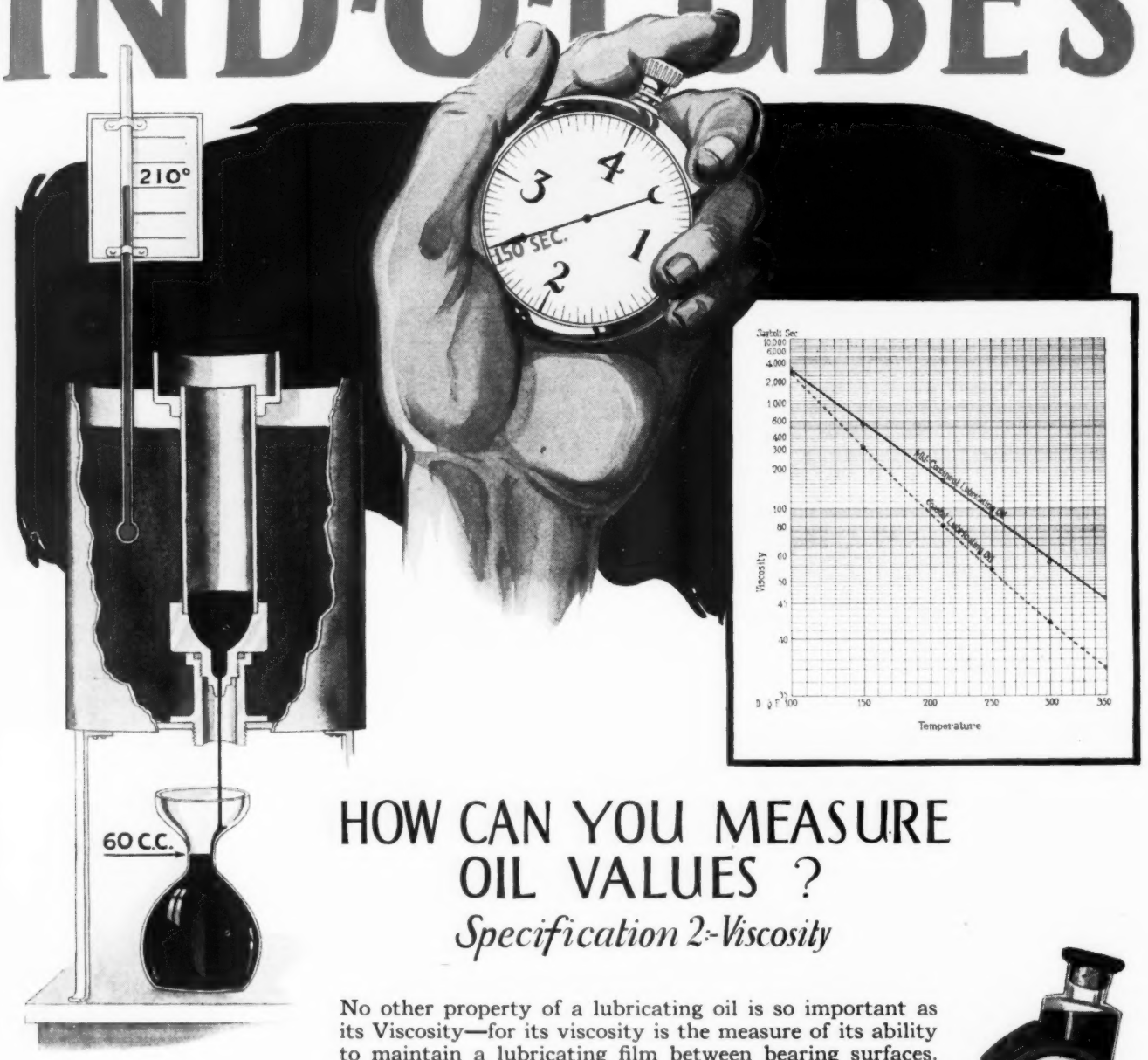
IND-O-LUBES



HOW CAN YOU MEASURE OIL VALUES ?

Specification 2:-Viscosity

No other property of a lubricating oil is so important as its Viscosity—for its viscosity is the measure of its ability to maintain a lubricating film between bearing surfaces. Fully as important, however, as its ***official*** viscosity at 100 or 210 degrees F., is its ability to ***retain*** viscosity at higher temperatures.

IND-O-LUBE Bright Stocks meet both requirements in exceptional measure. In the Saybolt test, here illustrated, **IND-O-LUBES** show, at 210 degrees F., viscosity of 150 to 160, indicating an oil of excellent body.

IND-O-LUBES ***retain*** their viscosity at the highest temperatures reached by modern motors. Their ability to do this is directly traceable to their manufacture from selected Midcontinent paraffin crude. Paraffin crudes, while less viscous than asphaltic crudes at low temperatures, far exceed them in ability to ***retain*** viscosity at high temperatures. Note the comparative viscosity curves in the above graph.

Genuine **IND-O-LUBE** Bright Stocks are identified by our seal, "Cream of the Crude",—a hallmark of genuineness and excellence which stamps them as the standard of value in bright stocks.

SPECIFICATIONS

Gravity	24.5-25
Flash	525-535
Fire	600-610
Viscosity at 210	150-160
Pour	10-15
Carbon Residue	1.5% Max.
Ash	.001% Max.
Reaction	Neutral
R. E.	20 Max.
S. E.	1200 Max.
Color	$1\frac{3}{8}$ to $1\frac{1}{4}$ T.R.

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